CATALOG NO. 15-68



B&B MOTOR AND CONTROL CORP.

BODINE FRACTIONAL H.P. MOTORS
TECHNICAL INFORMATION DIMENSIONS, WIRING
SUPERIOR SLO-SYN MOTORS
B & B SYNCHRONOUS MOTORS
RELIANCE ELECTRIC MOTORS AND CONTROLS
APCOR MULTI-SPEED GEARMOTORS
HELLAND MECHANICAL OVERLOAD COUPLINGS
MILLER RECTIFIERS AND TRANSFORMERS
A.T.C. TIMERS AND COUNTERS
CHRONOMETRIC SPEED COUNTERS
VIS-COUNT TACHOMETER SYSTEMS
HELLER VARIABLE SPEED MOTOR CONTROLS

B&B MOTOR AND CONTROL CORP
96 SPRING STREET, N.Y. 10012
TELEPHONE (212) 966-6777

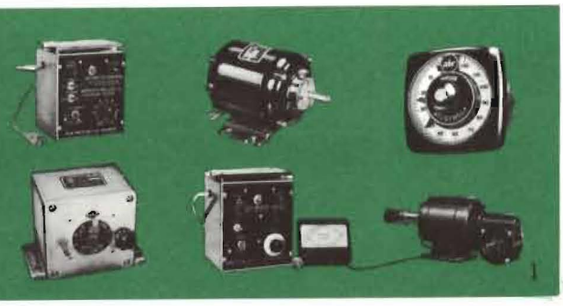
BODINE MOTORS

1/2000 TO 1/500 H.P. INSTRUMENT MOTORS

1/2000 TO 1/500 HORSEPOWER INSTRUMENT MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
	0.7	110" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-1800C	$34.52
	0.7	120" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-1800M	$39.20
	0.9	110" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-1800C	$34.52
	0.9	120" oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-1800M	$39.20
	1.0	110" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-1800C	$34.52
	1.0	120" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-1800M	$39.20
	1.1	105" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-1200C	$34.52
	1.4	95" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-900C	$34.52
	1.4	100" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-900M	$39.20
	1.4	105" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-1200C	$34.52
	1.5	105" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-1200C	$34.52
	1.9	95" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-900C	$34.52
	1.9	100" oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-900M	$39.20
	2.0	95" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	108	B8122E-900C	$34.52
	2.0	100" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-900M	$39.20
	2.1	85" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-600C	$34.52
	2.1	95" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	108	B8262E-600M	$39.20
	2.8	95" oz.	115V AC Cap-Rev. TEBB	KCI	22RM	BODINE	108	B8192E-600M	$39.20
	3.0	85" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-600C	$34.52
	3.0	95" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RM	BODINE	108	B8122E-600M	$39.20
	4.1	75" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-300C	$34.52
	4.1	81" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RM	BODINE	28	B8262E-300M	$39.20
	5.7	75" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-300C	$34.52
	5.7	95" oz.	115V AC Cap-Rev TEBB	KCI	22RM	BODINE	28	B8192E-300M	$39.20
	6.0	54" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-300C	$34.52
	6.0	95" oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-300M	$41.54
	7.0	49" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-180C	$34.52
	7.0	65" oz.	115V AC Cap-Rev. TEBB DB	KCI	23RM	BODINE	28	B8264E-180M	$39.20
	9.3	70" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-180C	$34.52
	9.3	93" oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-180M	$39.20
	10	32" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	28	B8262E-120C	$34.52
	10	32" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-180C	$34.52
	10	43" oz.	115V AC Cap-Rev. TEBB DB	KCI	23RM	BODINE	28	B8264E-120M	$39.20
	10	65" oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-180M	$41.54
	14	46" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	28	B8192E-120C	$34.52
	14	62" oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-120M	$39.20
	15	21" oz.	115V AC Cap-Rev. TEBB SYN	KYC	22RC	BODINE	28	B8122E-120C	$34.52
	15	43" oz.	115V AC Cap-Rev. TEBB SYN	KYC	26RM	BODINE	28	B8130E-120M	$41.54
	17	18" oz.	115V AC Cap-Rev. TEBB DB	KCI	22RC	BODINE	108	B8262E-72C	$34.52
	23	26" oz.	115V AC Cap-Rev. TEBB	KCI	22RC	BODINE	108	B8192E-72C	$34.52
	23	37" oz.	115V AC Cap-Rev. TEBB	KCI	23RM	BODINE	28	B8194E-72M	$39.20

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/150	1.6	40" lbs.	220V AC 60/3 Poly Phase OBB Rev	NPP	12RG	BODINE	27	B-7099-1080G	$ 87.73
1/150	1.66	38" lbs.	220V AC 60/3 Poly Phase OBB Rev Syn	NYP	12RG	BODINE	27	B-7087-1080G	$102.42
1/150	1.9	35" lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-900G	$ 80.50
1/150	1.9	35" lbs.	220V AC 60/3 Poly Phase OBB Rev	NPP	12RG	BODINE	27	B-7099-900G	$ 97.60
1/150	2.0	34" lbs.	220V AC 60/3 Poly Phase OBB Rev Syn	NYP	12RG	BODINE	27	B-7087-900G	$102.42
1/150	2.1	32" lbs.	115V AC 60/1 Split Phase OBB Rev	NSI	12RG	BODINE	25	B-7094-810G	$ 74.29
1/150	2.1	32" lbs.	115V DC Shunt Wound OBB Rev	NSH	12RG	BODINE	21	B-7096-810G	$ 80.50
								1/125 HORSEPOWER	
1/125	1.66	37" lbs.	115V AC 60/1 Split Phase OBB Rev Syn	NSY	12RG	BODINE	25	B-7078-1350G	$ 90.80
1/125	1.66	42" lbs.	115V AC 60/1 Split Phase OBB Rev Syn	NSY	12RG	BODINE	25	B-7078-1080G	$ 81.31
1/125	2	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-900	$ 46.22
1/125	2	2.1" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-900	$ 51.83●
1/125	2	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-900	$ 90.82
1/125	2	40" lbs.	115V AC Split-Phase Rev Syn OBB	NSY	12RG	BODINE	25	B-7078-900G	$ 81.31
1/125	10	7" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-180	$ 46.22
1/125	10	7" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-180	$ 51.83●
1/125	10	7" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-180	$ 90.82
1/125	25	6.7" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-72	$ 46.22
1/125	25	6.7" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-72	$ 83.49●
1/125	25	6.7" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-72	$ 90.82
1/125	30	7.2" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-60	$ 46.22
1/125	30	7.2" lbs.	115C AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-60	$ 76.32●
1/125	30	7.2" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-60	$ 90.82
1/125	50	4.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-36	$ 67.41
1/125	50	4.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-36	$ 83.49●
1/125	50	4.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-36	$ 90.82
1/125	60	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-30	$ 43.67
1/125	60	3.5" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-30	$ 49.28●
1/125	60	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-30	$ 87.93
1/125	75	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-24	$ 73.90
1/125	75	3.5" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-24	$ 79.19●
1/125	75	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-24	$ 87.93
1/125	100	2.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-18	$ 43.67
1/125	100	2.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-18	$ 49.28●
1/125	100	2.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-18	$ 87.93
1/125	150	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-12	$ 43.67
1/125	150	2.1" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-12	$ 79.19●
1/125	150	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-12	$ 87.93
1/125	180	1.9" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-10	$ 43.67
1/125	180	1.9" lbs.	115V AC 60/1 Cap Rev TEBB Syn	NYC	12R	BODINE	29	B-2270E-10	$ 75.60●
1/125	180	1.9" lbs.	220V AC 60/3 Poly Phase Rev TEBB Syn	NYP	12R	BODINE	27	B-2127E-10	$ 87.93
1/125	300	1.2" lbs.	115V AC 60/1 Split Phase Rev TEBB Syn	NSY	12R	BODINE	25	B-2246E-06	$ 43.67

● Price of Motor Includes 2.5 Mfd. Capacitor; Part #N-3203

NOTE

For all 11R and 12R frames with gear ratios of 6 to 1, 10 to 1, 12 to 1, 18 to 1, and 30 to 1, see single reduction group 1 dimensions on page 25. For 36 to 1 ratio and higher, see double reduction group 1. Ratios are the digits after the dash, example: B2222E-18 is a 18 to 1 ratio and is a single reduction, group 1.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/75	20	17" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-90G	$ 90.80
1/75	20	17" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-90G	$ 96.09★
1/75	20	17" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-90G	$108.00
1/75	30	13" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RG	BODINE	25	B-2246-60G	$ 53.66
1/75	30	13" lbs.	115V AC 60/1 Cap Rev OBB Syn	NYC	12RG	BODINE	29	B-2270-60G	$ 59.27★
1/75	30	13" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RG	BODINE	27	B-2127-60G	$108.00
1/75	30	8.4" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-60H	$ 84.00
1/75	30	8.4" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-60H	$ 95.68
1/75	33.33	7.6" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-54H	$ 84.00
1/75	33.33	7.6" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-54H	$ 95.68
1/75	45	7.5" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-40H	$ 84.00
1/75	45	7.5" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-40H	$ 95.68
1/75	60	5.6" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-30H	$ 84.00
1/75	60	5.6" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-30H	$ 95.68
1/75	90	4.7" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-20H	$ 84.00
1/75	90	4.7" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-20H	$ 95.68
1/75	120	4.0" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-15H	$ 84.00
1/75	120	4.0" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-15H	$ 95.68
1/75	180	3.5" lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246-10H	$ 84.00
1/75	180	3.5" lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127-10H	$ 95.68
1/75	300	2.80"lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-06H	$ 98.50
1/75	300	2.80"lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-06H	$111.90
1/75	360	1.75"lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-05H	$115.60
1/75	360	1.75"lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-05H	$125.50
1/75	450	1.55"lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-04H	$115.60
1/75	450	1.55"lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-04H	$125.50
1/75	600	1.40"lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-03H	$102.00
1/75	600	1.40"lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-03H	$111.90
1/75	720	.88"lbs.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12RH	BODINE	25	B-2246X-02-1/2H	$115.60
1/75	720	.88"lbs.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12RH	BODINE	27	B-2127X-02-1/2H	$125.50
1/75	1800	7.4" oz.	115V AC 60/1 Split Phase Rev OBB Syn	NSY	12	BODINE	25	B-2246	$ 29.90
1/75	1800	7.4" oz.	115V AC 60/1 Cap Rev OBB Syn	NYC	12	BODINE	29	B-2270	$ 35.51★
1/75	1800	7.4" oz.	220V AC 60/3 Poly Phase Rev OBB Syn	NYP	12	BODINE	27	B-2127	$ 62.50
								1/70 HORSEPOWER	
1/70	1.5	2.2" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-1120	$ 53.00
1/70	1.9	2.1" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-900	$ 40.07
1/70	1.9	2.1" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-900	$ 65.91★
1/70	1.9	2.1" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-900	$ 71.30
1/70	1.9	2.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-900	$ 79.23
1/70	2.0	48" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7054-720G	$ 83.90
1/70	2.4	48" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-7050-720G	$ 47.52
1/70	2.4	48" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-7052-720G	$ 80.50

★ Price Includes 3.75 Mfd. Capacitor; Part #N-3204

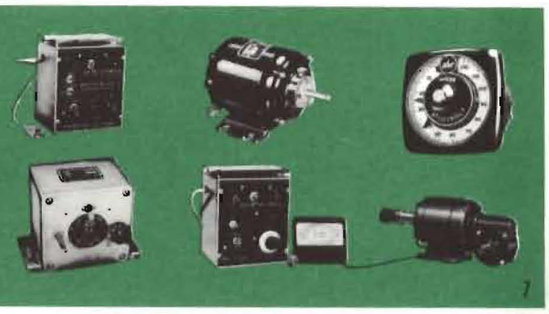
AC—Alternating Current
AC/DC—Alternating or direct current, series wound
CAP-REV—Capacitor run, reversible rotation
CW—Clockwise rotation, facing into shaft
CCW—Counter clockwise rotation, facing into shaft
DC—Direct current
DB—Dynamic braking (by shorting out capacitor)
HYS. SYN—Hystheresis synchronous
KCI—Capacitor run, reversible, non-synchronous
KYC—Capacitor run, reversible, synchronous
NCH—Capacitor run, reversible, hystheresis synchronous
NCI—Capacitor run, reversible
NPP—Polyphase (3 phase)
NSE—Series wound, AC or DC
NSH—Shunt wound, D.C.
NSI—Split-phase
NSY—Reluctance start, synchronous
NYC—Capacitor run, reversible, synchronous
OBB—Open ventilation, ball bearing motor
OSB—Open ventilation, sleeve bearing motor
Poly Phase—3 phase motor
REV—Reversible rotation
SYN—Synchronous
TE—Totally enclosed motor
TEBB—Totally enclosed motor with ball bearings
TESB—Totally enclosed motor with sleeve bearings
USI—Split-phase
V—Series wound AC/DC
XP—Explosion-proof motor
60/1—60 cycle A.C., 1 phase
60/3—60 cycle A.C., 3 phase
50/1—50 cycle A.C., 1 phase
115V—115 volts
230V—230 volts
220/440V—220 or 440 volt

BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA *	CAT. NO.	PRICE
1/70	24	6.7" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-72	$ 71.30
1/70	24	6.7" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-72	$ 79.23
1/70	29	8" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-60	$ 40.07
1/70	29	8" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-60	$ 65.91★
1/70	29	8" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-60	$ 77.00
1/70	29	8" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-60	$ 71.30
1/70	29	8" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-60	$ 79.23
1/70	48	7.1" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-36	$ 40.07
1/70	48	7.1" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-36	$ 45.68★
1/70	48	7.1" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-36	$ 44.66
1/70	48	7.1" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-36	$ 71.30
1/70	48	7.1" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-36	$ 79.23
1/70	58	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-30	$ 37.53
1/70	58	3.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-30	$ 63.28★
1/70	58	3.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-30	$ 69.50
1/70	58	3.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-30	$ 67.00
1/70	58	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-30	$ 76.33
1/70	72	6.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-24	$ 37.53
1/70	72	6.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-24	$ 63.28★
1/70	72	6.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-24	$ 69.50
1/70	72	6.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-24	$ 67.00
1/70	72	6.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-24	$ 76.33
1/70	96	5.4" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-18	$ 37.53
1/70	96	5.4" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-18	$ 43.14★
1/70	96	5.4" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-18	$ 42.17
1/70	96	5.4" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-18	$ 67.00
1/70	96	5.4" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-18	$ 76.33
1/70	144	4" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-12	$ 37.53
1/70	144	4" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-12	$ 43.14★
1/70	144	4" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-12	$ 69.50
1/70	144	4" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-12	$ 67.00
1/70	144	4" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-12	$ 76.33
1/70	173	3.5" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-10	$ 37.53
/70	173	3.5" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-10	$ 63.28★
₄/70	173	3.5" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-10	$ 69.50
1/70	173	3.5" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-10	$ 67.00
1/70	173	3.5" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-10	$ 76.33
1/70	288	2.2" lbs.	115V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2222E-06	$ 37.53
1/70	288	2.2" lbs.	115V AC 60/1 Cap Rev TEBB	NCI	12R	BODINE	29	B-2258E-06	$ 43.14★
1/70	288	2.2" lbs.	115V DC Shunt Wound Rev TEBB	NSH	12R	BODINE	21	B-2150E-06	$ 42.17
1/70	288	2.2" lbs.	230V AC 60/1 Split Phase Rev TEBB	NSI	12R	BODINE	25	B-2223E-06	$ 67.00
1/70	288	2.2" lbs.	220V AC 60/3 Poly Phase Rev TEBB	NPP	12R	BODINE	27	B-2139E-06	$ 76.33
1/70	1725	8" oz.	115V AC 60/1 Split Phase Rev TEBB	NSI	12	BODINE	25	B-2222E	$ 23.76

★ Price Includes 3.75 Mfd. Capacitor, Part #N-3204

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/50	19.2	26" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-90G	$ 51.97
1/50	19.2	26" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-90G	$ 79.86
1/50	19.2	26" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-90G	$ 87.73
1/50	29	20" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2222-60G	$ 47.52
1/50	29	20" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RG	BODINE	29	B-2258-60G	$ 53.13★
1/50	29	20" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RG	BODINE	21	B-2150-60G	$ 51.97
1/50	29	20" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RG	BODINE	25	B-2223-60G	$ 79.86
1/50	29	20" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RG	BODINE	27	B-2139-60G	$ 87.73
1/50	29	13" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-60H	$ 43.50
1/50	29	13" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-60H	$ 73.60★
1/50	29	13" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-60H	$ 48.02
1/50	29	13" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-60H	$ 77.10
1/50	29	13" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-60H	$ 83.14
1/50	32	11.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-54H	$ 43.50
1/50	32	11.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-54H	$ 73.60★
1/50	32	11.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-54H	$ 73.02
1/50	32	11.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-54H	$ 77.10
1/50	32	11.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-54H	$ 83.14
1/50	43	11.7" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-40H	$ 43.50
1/50	43	11.7" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-40H	$ 73.60★
1/50	43	11.7" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-40H	$ 48.02
1/50	43	11.7" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-40H	$ 77.10
1/50	43	11.7" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-40H	$ 83.14
1/50	57	8.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-30H	$ 43.50
1/50	57	8.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-30H	$ 73.60★
1/50	57	8.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-30H	$ 48.02
1/50	57	8.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-30H	$ 77.10
1/50	57	8.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-30H	$ 83.14
1/50	86	7.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-20H	$ 43.50
1/50	86	7.3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-20H	$ 73.60★
1/50	86	7.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-20H	$ 48.02
1/50	86	7.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-20H	$ 77.10
1/50	86	7.3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-20H	$ 83.14
1/50	115	6.0" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-15H	$ 43.50
1/50	115	6.0" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-15H	$ 73.60★
1/50	115	6.0" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-15H	$ 73.02
1/50	115	6.0" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-15H	$ 77.10
1/50	115	6.0" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-15H	$ 83.14
1/50	173	4.8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2222-10H	$ 43.50
1/50	173	4.8" lbs.	115V AC 60/1 Cap Rev OBB	NCI	12RH	BODINE	29	B-2258-10H	$ 73.60★
1/50	173	4.8" lbs.	115V DC Shunt Wound Rev OBB	NSH	12RH	BODINE	21	B-2150-10H	$ 54.00
1/50	173	4.8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	12RH	BODINE	25	B-2223-10H	$ 75.27
1/50	173	4.8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	12RH	BODINE	27	B-2139-10H	$ 83.14

• Price Includes 3.75 Mfd. Capacitor; Part #N-3204

AC—Alternating Current
AC/DC—Alternating or direct current, series wound
CAP-REV—Capacitor run, reversible rotation
CW—Clockwise rotation, facing into shaft
CCW—Counter clockwise rotation, facing into shaft
DC—Direct current
DB—Dynamic braking (by shorting out capacitor)
HYS. SYN—Hystheresis synchronous
KCI—Capacitor run, reversible, non-synchronous
KYC—Capacitor run, reversible, synchronous
NCH—Capacitor run, reversible, hystheresis synchronous
NCI—Capacitor run, reversible
NPP—Polyphase (3 phase)
NSE—Series wound, AC or DC
NSH—Shunt wound, D.C.
NSI—Split-phase
NSY—Reluctance start, synchronous
NYC—Capacitor run, reversible, synchronous
OBB—Open ventilation, ball bearing motor
OSB—Open ventilation, sleeve bearing motor
Poly Phase—3 phase motor
REV—Reversible rotation
SYN—Synchronous
TE—Totally enclosed motor
TEBB—Totally enclosed motor with ball bearings
TESB—Totally enclosed motor with sleeve bearings
USI—Split-phase
V—Series wound AC/DC
XP—Explosion-proof motor
60/1—60 cycle A.C., 1 phase
60/3—60 cycle A.C., 3 phase
50/1—50 cycle A.C., 1 phase
115V—115 volts
230V—230 volts
220/440V—220 or 440 volt

BODINE MOTORS

1/20 HORSEPOWER

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/20	1.2	350" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-1440J	$152.50
1/20	1.6	345" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-1080J	$152.50
1/20	1.8	330" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-960J	$152.50
1/20	1.9	325" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-900J	$152.50
1/20	2.4	263" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-720J	$152.50
1/20	2.9	219" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-600J	$152.50
1/20	3.2	246" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-540J	$152.50
1/20	3.6	219" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-480J	$152.50
1/20	4.8	164" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33RJ	BODINE	25	B-4208-360J	$152.50
1/20	23	13" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508X-60	$ 91.95
1/20	29	13" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208X-60	$ 73.38
1/20	29	13" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808X-60	$ 80.18▶
1/20	29	13" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408X-60	$ 74.00
1/20	29	13" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209X-60	$ 91.90
1/20	29	13" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809X-60	$ 99.45
1/20	30	31.5" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34RH	BODINE	25	B-4610-60H	$101.98
1/20	35.5	20" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-40	$ 80.47
1/20	43	20" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-40	$ 46.75
1/20	43	20" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-40	$ 53.96▶
1/20	43	20" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-40	$ 58.41
1/20	43	20" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-40	$ 80.43
1/20	43	20" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-40	$ 87.97
1/20	45	32" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34RH	BODINE	25	B-4610-40H	$101.98
1/20	47.5	21" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-30	$ 80.47
1/20	57	21" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-30	$ 46.75
1/20	57	21" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-30	$ 53.96▶
1/20	57	21" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-30	$ 58.41
1/20	57	21" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-30	$ 80.43
1/20	57	21" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-30	$ 87.97
1/20	60	21" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-30	$ 82.50
1/20	71.3	18.3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-5508-20	$ 80.47
1/20	86	18.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4208-20	$ 46.75
1/20	86	18.3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	33R	BODINE	29	B-3808-20	$ 53.96▶
1/20	86	18.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	33R	BODINE	21	B-2408-20	$ 58.41
1/20	86	18.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	33R	BODINE	25	B-4209-20	$ 80.43
1/20	86	18.3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	33R	BODINE	27	B-4809-20	$ 87.97
1/20	90	17.5" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	34R	BODINE	25	B-4610-20	$ 82.50

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

▶ Price includes 5 Mfd. Capacitor, Part #N3205

AC—Alternating Current
AC/DC—Alternating or direct current, series wound
CAP-REV—Capacitor run, reversible rotation
CW—Clockwise rotation, facing into shaft
CCW—Counter clockwise rotation, facing into shaft
DC—Direct current
DB—Dynamic braking (by shorting out capacitor)
HYS. SYN—Hystheresis synchronous
KCI—Capacitor run, reversible, non-synchronous
KYC—Capacitor run, reversible, synchronous
NCH—Capacitor run, reversible, hystheresis synchronous
NCI—Capacitor run, reversible
NPP—Polyphase (3 phase)
NSE—Series wound, AC or DC
NSH—Shunt wound, D.C.
NSI—Split-phase
NSY—Reluctance start, synchronous
NYC—Capacitor run, reversible, synchronous
OBB—Open ventilation, ball bearing motor
OSB—Open ventilation, sleeve bearing motor
Poly Phase—3 phase motor
REV—Reversible rotation
SYN—Synchronous
TE—Totally enclosed motor
TEBB—Totally enclosed motor with ball bearings
TESB—Totally enclosed motor with sleeve bearings
USI—Split-phase
V—Series wound AC/DC
XP—Explosion-proof motor
60/1—60 cycle A.C., 1 phase
60/3—60 cycle A.C., 3 phase
50/1—50 cycle A.C., 1 phase
115V—115 volts
230V—230 volts
220/440V—220 or 440 volt

BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
			1/18 HORSEPOWER						
1/18	83	4.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-60H	$ 65.61
1/18	125	11.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-40H	$ 40.29
1/18	167	8.4" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-30H	$ 65.61
1/18	250	7.0" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-20H	$ 40.29
1/18	333	5.7" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-15H	$ 65.61
1/18	500	4.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170-10H	$ 40.29
1/18	1000	2.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-05H	$ 83.95
1/18	2000	1.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	12RH	BODINE	20	B-2170X-02-½H	$ 83.95
1/18	5000	11.5" oz.	115V AC/DC Series Wound OBB CW	NSE	12	BODINE	20	2170	$ 17.82
			Note: Series wound motors increase in speed as load decreases.						
			1/16 HORSEPOWER						
1/16	5000	16" oz.	115V AC/DC Series Wound OSB CW	NSE	13	BODINE	20	2172	$ 18.65
1/16	5000	16" oz.	115V AC/DC Series Wound OBB CW	NSE	13	BODINE	20	B-2172	$ 31.00
			1/15 HORSEPOWER						
1/15	4.6	219" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-300J	$132.64
1/15	5.7	219" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-300J	$ 90.72
1/15	5.7	219" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-300J	$153.50►
1/15	5.7	219" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-300J	$125.00
1/15	5.7	219" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-300J	$131.10
1/15	5.7	219" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-300J	$138.94
1/15	6.8	184" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-216J	$157.50
1/15	8	184" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4210-216J	$141.86
1/15	8	184" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RJ	BODINE	29	B-3810-216J	$153.50►
1/15	8	184" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RJ	BODINE	21	B-2410-216J	$177.20
1/15	8	184" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-4211-216J	$157.50
1/15	8	184" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	34RJ	BODINE	27	B-4811-216J	$171.00
1/15	8	154" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RJ	BODINE	25	B-5510-180J	$157.00

CW indicates clockwise rotation when looking into shaft

► Price Includes 5.0 Mfd. Capacitor; Part #N-3205

AC—Alternating Current
AC/DC—Alternating or direct current, series wound
CAP-REV—Capacitor run, reversible rotation
CW—Clockwise rotation, facing into shaft
CCW—Counter clockwise rotation, facing into shaft
DC—Direct current
DB—Dynamic braking (by shorting out capacitor)
HYS. SYN—Hystheresis synchronous
KCI—Capacitor run, reversible, non-synchronous
KYC—Capacitor run, reversible, synchronous
NCH—Capacitor run, reversible, hystheresis synchronous
NCI—Capacitor run, reversible
NPP—Polyphase (3 phase)
NSE—Series wound, AC or DC
NSH—Shunt wound, D.C.
NSI—Split-phase
NSY—Reluctance start, synchronous
NYC—Capacitor run, reversible, synchronous
OBB—Open ventilation, ball bearing motor
OSB—Open ventilation, sleeve bearing motor
Poly Phase—3 phase motor
REV—Reversible rotation
SYN—Synchronous
TE—Totally enclosed motor
TEBB—Totally enclosed motor with ball bearings
TESB—Totally enclosed motor with sleeve bearings
USI—Split-phase
V—Series wound AC/DC
XP—Explosion-proof motor
60/1—60 cycle A.C., 1 phase
60/3—60 cycle A.C., 3 phase
50/1—50 cycle A.C., 1 phase
115V—115 volts
230V—230 volts
220/440V—220 or 440 volt

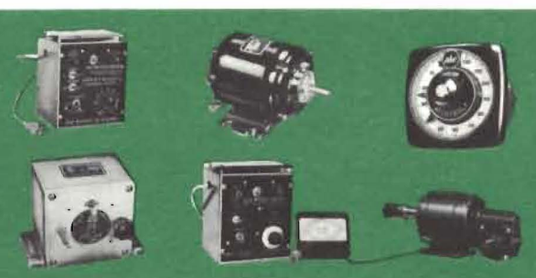
BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/15	43	44" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-40H	$ 59.04▶
1/15	43	44" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-40H	$ 64.61
1/15	43	44" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-40H	$ 86.68
1/15	43	44" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-40H	$ 98.61
1/15	47.5	37" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-30H	$ 91.20
1/15	57	37" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-30H	$ 83.46
1/15	57	37" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-30H	$ 90.26▶
1/15	57	37" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-30H	$ 64.61
1/15	57	37" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-30H	$ 91.70
1/15	57	37" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-30H	$ 98.61
1/15	71.3	29" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-20H	$ 86.73
1/15	86	29" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-20H	$ 51.83
1/15	86	29" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-20H	$ 59.04▶
1/15	86	29" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-20H	$ 64.61
1/15	86	29" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-20H	$ 86.68
1/15	86	29" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-20H	$ 98.61
1/15	95	22" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-15H	$109.51
1/15	115	22" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-15H	$ 90.49
1/15	115	22" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-15H	$ 97.29▶
1/15	115	22" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-15H	$106.48
1/15	115	22" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-15H	$109.47
1/15	115	22" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109ZX-15H	$105.64
1/15	142.5	17" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510-10H	$ 86.73
1/15	173	17" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210-10H	$ 51.83
1/15	173	17" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810-10H	$ 59.04▶
1/15	173	17" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410-10H	$ 64.61
1/15	173	17" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211-10H	$ 86.68
1/15	173	17" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109Z-10H	$ 98.61
1/15	285	8.5" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-05H	$109.50
1/15	345	8.5" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-05H	$ 90.49
1/15	345	8.5" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-05H	$ 97.29▶
1/15	345	8.5" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-05H	$106.48
1/15	345	8.5" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-05H	$109.47
1/15	345	8.5" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109ZX-05H	$109.81
1/15	570	4.3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-5510X-02-½H	$105.64
1/15	690	4.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4210X-02-½H	$110.49
1/15	690	4.3" lbs.	115V AC 60/1 Cap Rev OBB	NCI	34RH	BODINE	29	B-3810X-02-½H	$117.28▶
1/15	690	4.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	34RH	BODINE	21	B-2410X-02-½H	$126.98
1/15	690	4.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	34RH	BODINE	25	B-4211X-02-½H	$129.46
1/15	690	4.3" lbs.	220/440V AC 60/3 Poly Phase Rev OBB	NPP	34RH	BODINE	27	B-5109ZX-02-½H	$125.64
1/15	1200	56" oz.	115V AC 60/1 Cap Rev OBB HYS SYN	NCH	55	BODINE	29	B-7372	$ 68.61 ■
1/15	1425	38" oz.	115V AC 50/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-5510	$ 52.20
1/15	1725	38" oz.	115V AC 60/1 Split Phase Rev OBB	NSI	34	BODINE	25	B-4210	$ 27.42

▶Price Includes 5.0 Mfd. Capacitor; Part #N-3205

†• Price Includes 7.5 Mfd. Capacitor; Part #N-3206

Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.



BODINE MOTORS

HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/12	115	30" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-15	$113.58
1/12	115	30" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-15	$121.42
1/12	120	28" lbs.	115V AC 60/1 Split Phase Rcv OBB SYN	NSY	54R	BODINE	25	B-4620X-15	$104.82
1/12	142.5	21" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512-10	$ 90.74
1/12	173	21" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218-10	$ 54.31
1/12	173	21" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418-10	$ 70.00
1/12	173	21" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219-10	$ 90.79
1/12	173	21" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819-10	$ 98.64
1/12	180	20.6" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620-10	$ 97.78
1/12	285	10.5" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512X-05	$113.58
1/12	345	10.5" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-05	$ 93.33
1/12	345	10.5" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-05	$106.54
1/12	345	10.5" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-05	$113.58
1/12	345	10.5" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-05	$121.42
1/12	360	10.3" lbs.	115V AC 60/1 Split Phase RevOBB SYN	NSY	54R	BODINE	25	B-4620X-05	$104.82
1/12	570	5.3" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-5512X-02-½	$138.57
1/12	690	5.3" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4218X-02-½	$113.32
1/12	690	5.3" lbs.	115V DC Shunt Wound Rev OBB	NSH	53R	BODINE	21	B-2418X-02-½	$126.54
1/12	690	5.3" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	53R	BODINE	25	B-4219X-02-½	$133.57
1/12	690	5.3" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	53R	BODINE	27	B-4819X-02-½	$141.42
1/12	720	5.2" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	54R	BODINE	25	B-4620X-02-½	$124.81
1/12	1125	74.8" oz.	115V DC Shunt Wound Rev OBB	NSH	53	BODINE	21	B-2370	$ 59.00
1/12	1725	47" oz.	115V AC 60/1 Split Phase CCW OSB	USI	34	BODINE	20	9006XZ	$ 19.00
1/12	1725	47" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	53	BODINE	25	B-4219	$ 54.00
1/12	1725	47" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	34	BODINE	27	B-4861	$ 59.80
1/12	3450	24.4" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	34	BODINE	27	B-5139EZ	$ 59.80
1/12	7500	11.5" oz.	115V AC DC Series Wound CW OBB	NSE	12	BODINE	20	B-2192	$ 21.40

Series wound motors increase in speed as load decreases.

1/10 HORSEPOWER

1/10	83	7.6" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-60	$ 76.08
1/10	125	19.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-40	$ 76.08
1/10	167	15.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-30	$ 76.08
1/10	250	12.5" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-20	$ 49.53
1/10	333	10.4" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-15	$ 49.53
1/10	500	8.2" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258-10	$ 49.53
1/10	1000	4.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-05	$ 94.42
1/10	2000	2.1" lbs.	115V AC/DC Series Wound OBB CW	NSE	33R	BODINE	20	B-5258X-02-½	$ 94.42
1/10	5000	20" oz.	115V AC/DC Series Wound OBB CW	NSE	33	BODINE	20	5258	$ 21.22
1/10	7500	13.4" oz.	115V AC/DC Series Wound OBB CW	NSE	13	BODINE	20	B-2194	$ 22.23
1/10	10000	10" oz.	115V AC/DC Series Wound OBB CW	NSE	12	BODINE	20	B-2208	$ 21.40

CW indicates clockwise rotation when looking into shaft

CCW indicates counter clockwise rotation when looking into shaft

B&B GIVES SERVICE

Only from B&B can you get the complete attention to details and service that has been the prime reason for our rapid growth since our founding 46 years ago. Our service entails the extensive stocking of tens of hundreds of motors and all other catalogued items. All these items are available for immediate delivery locally, nationally, and worldwide. Our service program also includes complete technical and engineering assistance, complete motor repair and modification facilities, and latest office equipment to insure trouble-free handling of all aspects of your order.

BODINE MOTORS

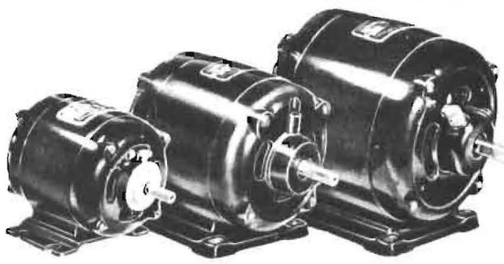
HP	RPM	TORQUE	ELECTRICAL SPECIFICATIONS	TYPE	FRAME	MFG.	WIRING DATA	CAT. NO.	PRICE
1/8	173	32" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221-10L	$ 97.39
1/8	173	32" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821-10L	$105.27
1/8	180	36" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622-10H	$153.48
1/8	216	28" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-08L	$101.94
1/8	216	28" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-08L	$120.43
1/8	216	28" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-08L	$122.65
1/8	216	28" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-08L	$130.53
1/8	225	30" lbs.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55RH	BODINE	25	B-4622X-08H	$166.60
1/8	250	19" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260-20H	$ 56.50
1/8	285	16" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-05L	$122.65
1/8	333	15" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260X-15H	$ 95.28
1/8	345	16" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-05L	$101.94
1/8	345	16" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-05L	$120.43
1/8	345	16" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-05L	$122.65
1/8	345	16" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-05L	$130.53
1/8	500	11" lbs.	115V AC/DC Series Wound OBB CW	NSE	34RH	BODINE	20	B-5260-10H	$ 56.50
1/8	570	8" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-5514X-02-½L	$140.17
1/8	690	8" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4220X-02-½L	$119.46
1/8	690	8" lbs.	115V DC Shunt Wound Rev OBB	NSH	54RL	BODINE	21	B-2420X-02-½L	$137.95
1/8	690	8" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	54RL	BODINE	25	B-4221X-02-½L	$140.17
1/8	690	8" lbs.	220V AC 60/3 Poly Phase Rev OBB	NPP	54RL	BODINE	27	B-4821X-02-½L	$148.05
1/8	1000	6" lbs.	115V AC/DC Series Wound CW OBB	NSE	34RH	BODINE	20	B-5260X-05H	$ 95.28
1/8	1725	70" oz.	115V DC Shunt Wound Rev OBB	NSH	54	BODINE	21	B-2420	$ 46.11
1/8	1725	70" oz.	230V AC 60/1 Split Phase Rev OBB	NSI	54	BODINE	25	B-4221	$ 52.50
1/8	1725	70" oz.	220V AC 60/3 Poly Phase Rev OBB	NPP	54	BODINE	27	B-5121	$ 69.30
1/8	1800	70" oz.	115V AC 60/1 Split Phase Rev OBB SYN	NSY	55	BODINE	25	B-4622	$ 44.21
1/8	2000	70" oz.	115V AC/DC Series Wound CW	NSE	34RH	BODINE	20	B-5260X-02-½H	$115.27
1/8	5000	25.17" oz.	115V AC/DC Series Wound CW OSB	NSE	34	BODINE	20	B-5260	$ 22.95
								1/7 HORSEPOWER	
1/7	10000	14.6" oz.	115V AC/DC Series Wound CW OBB	NSE	13	BODINE	20		$ 22.23
								1/6 HORSEPOWER	
1/6	23.6	211" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516X-60H	$171.42
1/6	29	211" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222X-60H	$145.20
1/6	29	211" lbs.	115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822X-60H	$149.40 ●
1/6	29	211" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223X-60H	$165.21
1/6	29.7	198" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-48H	$134.18
1/6	36	198" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-48H	$ 85.81
1/6	36	198" lbs.	115V AC 60/1 Cap Rev OBB	NCI	55RH	BODINE	29	B-3822-48H	$145.20 ●
1/6	36	198" lbs.	230V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4223-48H	$129.47
1/6	39.5	160" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-36H	$134.18
1/6	47.5	131" lbs.	115V AC 50/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-5516-30H	$134.18
1/6	48	160" lbs.	115V AC 60/1 Split Phase Rev OBB	NSI	55RH	BODINE	25	B-4222-36H	$ 85.81

CW indicates clockwise rotation when looking into shaft
CCW indicates counter clockwise rotation when looking into shaft
►Price Includes 5.0 Mfd. Capacitor; Part #N-3205
† Price Includes 7.5 Mfd. Capacitor: Part #N-3206
● Price includes 10 Mfd. Capacitor; Part #N3207



Prices are for single unit orders; quantity discounts are available. All motors are available for immediate delivery. 1 year guarantee on all motors. Not all items are listed, thousands more are available of unusual design in limited quantities, call or write for information. Free technical and engineering assistance.

SYNCHRONOUS MOTORS



These motors (usually wound permanent-split capacitor) are suitable for operations only on alternating current, and have standard windings designed for continuous duty. Reversing may be accomplished either at standstill or while rotating under favorable conditions.

Speed characteristics are the same as for reluctance synchronous motors except that the pull-in and pull-out torques are very similar in value. Starting torque is about 100% of full-load torque. Starting current is low. High inertia loads can be accelerated to synchronous speed, and inherent vibration is lower than for reluctance synchronous motors. The rotor may pull into synchronism in any angular position at random. Since the positions of rotor poles are not fixed, but are developed each time the motor starts and pulls into synchronism, their locations cannot be predicted nor maintained.

BODINE SINGLE SPEED HYSTERSEIS TYPE MOTORS

Self-Ventilated 50°C Rise Sleeve Bearing & Ball Bearing ★

Speed R.P.M.	H.P.	Torq. in oz.	Type–Frame Size	Sl. Brg. Cat. #	Price (incl. cap)	Net Wt. Lbs.
600	1/250	6.7	NCH-33	7298	$120.00	11
900	1/60	18.7	NCH-34	7314	$120.00	13½
1200	1/40	21	NCH-33	7358	$ 53.78	11
1200	1/30	28	NCH-34	B7360★	$ 53.34	13½
1200	1/15	56	NCH-55	B7372★	$ 68.61	21¾
1800	1/60	9.3	NCH-12	7336	$100.00	3¾
1800	1/20	28	NCH-34	B7410★	$ 51.58	13½
3600	1/50	5.6	NCH-13	B7346★	$ 49.34	5½
3600	1/20	14	NCH-34	B7460★	$ 55.23	13½

All above motors are supplied with proper capacitor

BODINE DUAL SPEED HYSTERSEIS TYPE MOTORS

Speed R.P.M.	H.P.	Torq. in oz.	Type–Fr. Size	Sl. Brg. Cat. #	Price (inc. cap)	Net Wt. Lbs.
600/1200	1/300-1/75	5.6-11.2	NCH-33	7134	$125.00	11
600/1200	1/200-1/70	8.4-12	NCH-34	7136	$130.00	13½
900/1800	1/70-1/40	16-14	NCH-34	7140	$140.00	13¾
1800/3600	.075-.040	—	NCH-14	—	$125.00	6

All above motors are supplied with proper capacitor.

RELUCTANCE SYNCHRONOUS MOTORS

These motors (split-phase, capacitor and polyphase) are suitable for operating only on alternating current, and have standard windings designed for continuous duty. Reversing and starting characteristics are similar to those of their non-synchronous counterparts, except that they are more sensitive to accelerating inertia loads to full running speed. Efficiency is much lower. Speed is absolutely constant, and is determined by the frequency of the power source and the number of motor poles. They will run at this one speed regardless of load variations from no-load to full-load, at normal voltage. The salient-pole feature of these motors produces more inherent vibration than is present in non-synchronous types. It also causes their rotors to pull into step with their rotating magnetic fields in definite angular positions.

THE ROTORS ARE INDIVIDUALLY BALANCED TO ASSURE MINIMUM VIBRATION AND LONG BEARING LIFE.

B&B SINGLE SPEED SYNCHRONOUS MOTORS

	1200 RPM	1800 RPM	3600 RPM
1/6 HP			
1 Ph	$132.00	$119.00	$ 98.00
3 Ph	$127.00	$114.00	$103.00
Frame	56	56	48
1/4 HP			
1 Ph	$150.00	$122.00	$107.00
3 Ph	$145.00	$117.00	$112.00
Frame	56	56	48
1/3 HP			
1 Ph	$203.00	$130.00	$112.00
3 Ph	$162.00	$134.00	$122.00
Frame	56	56	56
1/2 HP			
1 Ph	$235.00	$145.00	$142.00
3 Ph	$165.00	$147.00	$130.00
Frame	145T	56	56
3/4 HP			
1 Ph	$308.00	$171.00	$161.00
3 Ph	$171.00	$150.00	$133.00
Frame	184	184	182
1 HP			
1 Ph	$370.00	$196.00	$187.00
3 Ph	$188.00	$155.00	$166.00
Frame	213	213	184
1-1/2 HP			
1 Ph	$485.00	$245.00	$241.00
3 Ph	$215.00	$174.00	$181.00
Frame	215	215	213

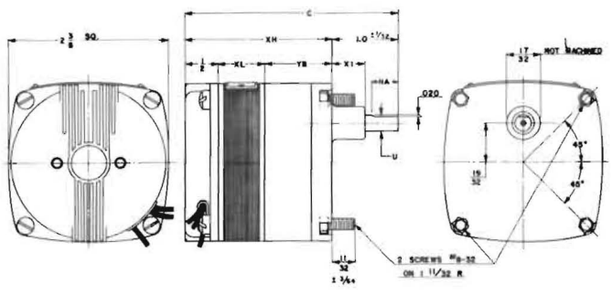
ADD 10% for enclosing
ADD 10% for flange mtg.

See page 23 for dimensions

DIMENSIONS ARE FOR ESTIMATING PURPOSES ONLY

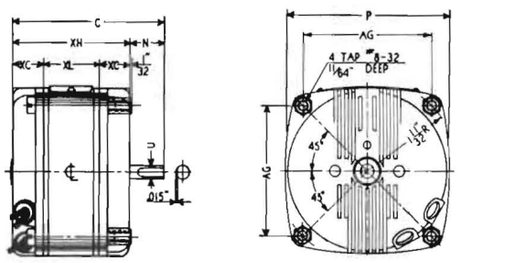
FRAME	C	XI	U	XH	XL	YB	NA
K-23RB	3 11/32	1/2	.250	2 11/32	13/16	1 1/32	3/8
K-22RC	3 11/32	1/2	.250	2 11/32	11/16	1 5/32	3/8
K-22RM	3 5/8	1/4	.250	2 5/8	11/16	1 7/16	5/8
K-23RM	3 3/4	1/4	.250	2 3/4	13/16	1 7/16	5/8
K-26RM	4 13/32	1/4	.250	3 13/32	1 15/32	1 7/16	5/8

Diameter of Shaft subject to a maximum variation of minus .0003 inch.

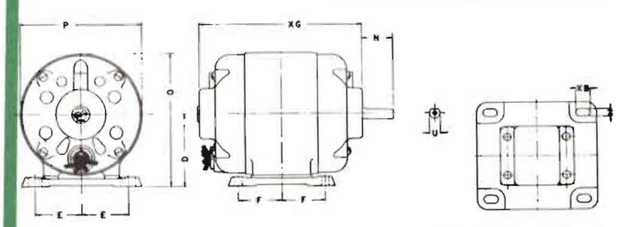


FRAME K-23RB, R2RC, 22RM, 23RM, 26RM

FRAME K-23, 26



FRAME	C	N	P	U	AG	XC	XH	XL
K-23	2 3/8	3/8	2 3/8	3/16	1 25/32	15/32	1 3/4	13/16
K-26	3 1/32	5/8	2 3/8	3/16	1 25/32	15/32	2 13/32	1 15/32

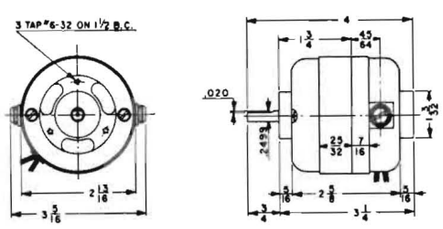


FRAME N33, 34

FRAME	D to —1/32"	E	F	H	N	O	P	U	XB	XG †	XG *
N 33	2 3/8	1 11/16	1 3/16	1/4	1 1/8	4 33/64	4 13/32	.3745	1/2	5 1/2	5 3/8
N 34	2 5/8	1 11/16	1 3/16	1/4	1 1/8	4 33/64	4 13/32	.3745	1/2	6	5 7/8

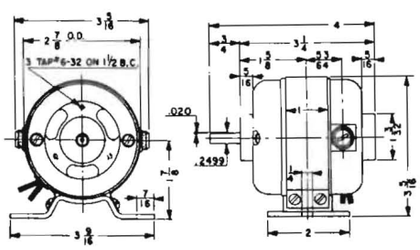
All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
* Ball bearing motors only.

FRAME V10



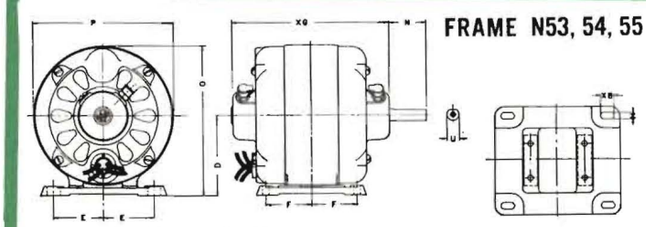
The dimensional diagram above represents a round body motor without the conventional type of base mounting. It will be noted that there are three holes in the end shield tapped for three 6-32 machine screws, which provides a means for end mounting.

A base is also supplied which is attached to a steel strap that fastens around the motor body.



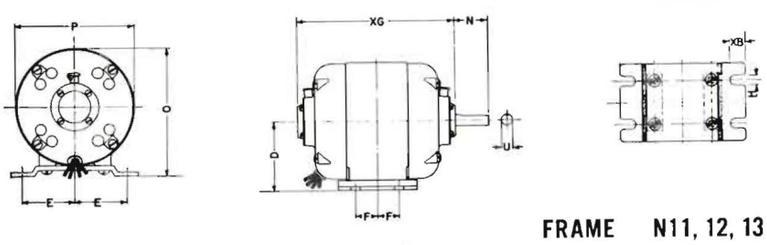
Shaft height (1 7/8") subject to variation of plus or minus 1/32".

FRAME N53, 54, 55



FRAME	D to —1/32"	E	F	H	N	O	P	U	XB	XG †	XG *
N 53	3 7/32	2	1 13/16	1/4	1 1/2	6 1/4	5 13/32	.4995	17/32	6 1/4	5 25/32
N 54	3 7/32	2	1 13/16	1/4	1 1/2	6 1/4	5 13/32	.4995	17/32	6 13/16	6 11/32
N 55	3 7/32	2	2 11/32	1/4	1 1/2	6 1/4	5 13/32	.4995	9/16	7 3/8	6 25/32

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
* Ball bearing motors only.



FRAME N11, 12, 13

FRAME	D to —1/32"	E	F	H	N	O	P	U	XB	XG †	XG *
N 11	2	1 15/32	5/8	1/4	15/16	3 21/32	3 31/32	.3122	7/16	4 1/2	4 1/4
N 12	2	1 15/32	5/8	1/4	15/16	3 21/32	3 31/32	.3122	7/16	4 3/4	4 1/2
N 13	2	1 15/32	5/8	1/4	15/16	3 21/32	3 31/32	.3122	7/16	5 1/8	4 7/8

All dimensions apply to either sleeve or ball bearing motors except XG as noted.
† Sleeve bearing motors only.
* Ball bearing motors only.

B&B Stocks slo-syn SYNCHRONOUS MOTORS

Now, you can get fast delivery of the SLO-SYN Motors from the major motor and control supplier — B & B

SYNCHRONOUS MOTORS
- For "On-Off" A-C, Servo and Phase-Switched D-C Stepping Operation
- Torque Ratings from 25 to 1800 ounce-inches available

TRANSLATORS
- Precision Stepping of Slo-Syn Synchronous Motors from Low Power Pulses

PRESET INDEXERS
- Control Indexing Operations using Slo-Syn Synchronous Motors for Positioning

slo-syn® SYNCHRONOUS MOTORS

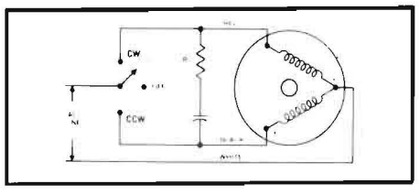
SLO-SYN Synchronous Motors are permanent magnet a-c motors having extremely rapid starting, stopping and reversing characteristics and a slow basic shaft speed of 72 RPM synchronous with a line frequency of 60 cycles. Standard three-lead types require only a single-pole, three-position switch for complete forward, reverse and "off" control. Starting and operating current are nearly identical, so there is no excessive inrush current when a SLO-SYN motor is energized. The motors can be completely stalled without overheating and with no harmful effects on the components. Starting or stopping is accomplished in less than 5° of shaft rotation, eliminating the need for any mechanical or electrical braking. In applications incorporating an auxiliary high speed motor for use when an intermittent faster speed is necessary, the SLO-SYN motor can remain coupled to the load and may be overdriven without risk of damage.

PHASE-SHIFTING NETWORK

A phase-shifting network consisting of a resistor and a capacitor must be used when operating from a single-phase source. Values of the phase-shifting components are given in the ratings and specifications charts. Unless otherwise specified, the resistor and capacitor values given will provide satisfactory operation at any frequency between 50 and 60 cycles.

TEMPERATURE

All standard motors are rated for continuous duty at a maximum ambient temperature of 40°C. SS150 and SS152 types use Class A insulation; all others have Class B insulation.



RATINGS

DISCOUNT SCHEDULE 1-5 NET
6-24 10%
25-99 15%

NO COMBINING OF PART #'s FOR QUANTITY DISCOUNTS

RATINGS AND SPECIFICATIONS FOR A-C APPLICATIONS

TYPE	MAXIMUM AMPERES	TORQUE (Oz-In)	MAXIMUM MOMENT OF INERTIA OF A RIGIDLY ATTACHED LOAD (Lb-In²)	PHASE-SHIFTING COMPONENTS* PRICE	RESISTOR	RESISTOR PART NUMBER	PRICE	CAPACITOR	CAPACITOR PART NUMBER	PRICE
120 Volts, 50/60 Cycles, 1 Phase, 72 RPM at 60 Cycles										
SS25	0.1	25	0.25	$ 46.00	500 ohm ±5% 5 watt	R-SS25	$ 1.00	0.75 mfd ±6% 330 VAC	C-SS25	$ 3.00
SS50	0.3	50	0.5	40.00	250 ohm ±5% 25 watt	R-SS50/150	1.25	2.6 mfd ±6% 330 VAC	C-SS50	4.50
SS50M†	0.3	50	0.5	65.00	250 ohm ±5% 25 watt	R-SS50M/150M	4.00	2.6 mfd ±6% 330 VAC	C-SS50M	6.00
SS150	0.4	150	1.5	48.00	250 ohm ±5% 25 watt	R-SS50/150	1.25	3.75 mfd ±6% 330 VAC	C-SS150	3.50
SS150M†	0.4	150	1.5	74.00	250 ohm ±5% 25 watt	R-SS50M/150M	4.00	3.75 mfd ±6% 330 VAC	C-SS150M	6.50
SS250	0.6	250	3	68.00	150 ohm ±5% 50 watt	R-SS250/400	2.50	6.5 mfd ±6% 330 VAC	C-SS250/400	4.50
SS250M†	0.6	250	3	89.00	150 ohm ±5% 50 watt	R-SS250M	5.00	6.5 mfd ±6% 330 VAC	C-SS250M	6.50
X250‡	0.6	250	3	98.00	150 ohm ±5% 50 watt	R-SS250/400	2.50	6.5 mfd ±6% 330 VAC	C-SS250/400	4.50
SS400	0.8	400	4.5	$100.00	150 ohm ±5% 50 watt	R-SS250/400	2.50	6.5 mfd ±6% 330 VAC	C-SS250/400	4.50
X1000‡§	3.0	1000	9	195.00	65 ohm ±5% 150 watt	R-X1000	3.50	30 mfd ±5% 330 VAC	C-X1000	19.50
SS1800§	4.0	1800	16	265.00	40 ohm ±5% 300 watt	R-SS1800	6.50	60 mfd ±6% 330 VAC	C-SS1800	28.00
240 Volts, 50/60 Cycles, 1 Phase, 72 RPM at 60 Cycles										
SS52‡	0.2	50	0.5	40.00	1000 ohm ±5% 10 watt	R-SS52	1.25	0.67 mfd ±6% 660 VAC	C-SS52	4.50
SS152	0.7	150	1.5	48.00	1200 ohm ±5% 25 watt	R-SS152	2.50	1.0 mfd ±6% 660 VAC	C-SS152	4.50
SS252	0.3	250	3	68.00	500 ohm ±5% 50 watt	R-SS252/402	2.50	1.75 mfd ±6% 660 VAC	C-SS252/402	4.50
X252‡	0.3	250	3	98.00	500 ohm ±5% 50 watt	R-SS252/402	2.50	1.75 mfd ±6% 660 VAC	C-SS252/402	4.50
SS402	0.3	400	4.5	100.00	500 ohm ±5% 50 watt	R-SS252/402	2.50	1.75 mfd ±6% 660 VAC	C-SS252/402	4.50
X1002‡§	1.5	1000	9	195.00	250 ohm ±5% 200 watt	R-X1002	4.00	8 mfd ±6% 660 VAC	C-X1002	18.00
SS1802	2.0	1800	16	265.00	130 ohm ±5% 320 watt	R-SS1802	6.50	15 mfd ±6% 660 VAC	C-SS1802	24.00

*External resistor and capacitor must be ordered separately. †Militarized. ‡Explosion-proof. §For 60 cycles. Other phase-shifting components required for 50 cycles.

RATINGS AND SPECIFICATIONS — PLANETARY GEAR ASSEMBLIES

PLANETARY GEAR ASSEMBLY	ADD TO MOTOR PRICE	RATIO	APPROXIMATE SPEED (RPM)††	OUTPUT TORQUE (OZ-IN) SS50†, SS50M, SS52†	SS150†, SS150M, SS152†	SS250, SS250M, SS252	X250, X252	SS400, SS402
P1	$25.00	4½	16.6	120	400	650	650	1000
P2	25.00	21½	3.32	600	2000	—	2000	—
P3	35.00	108½	0.665	2000	2000	—	2000	—
P4	50.00	541½	0.133	2000	2000	—	2000	—
P5	65.00	2708½	0.027	2000	2000	—	2000	—

†Includes equivalent RC types. ††Exact speed may be calculated from basic motor speed (72 RPM) and given ratio.

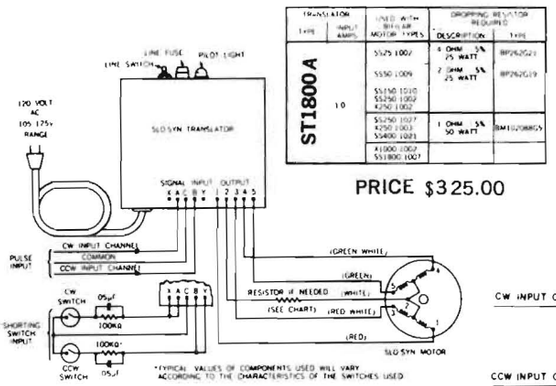
slo-syn Synchronous Motors — DC STEPPING — 200 Steps per Revolution

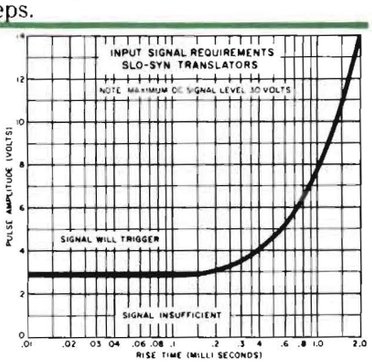
With a switching sequence a SLO-SYN Motor will take 200 steps to make one revolution of the rotor shaft. In effect, each switching operation acts in the same manner as does ¼ cycle of a-c excitation, advancing the rotor shaft one step of 1.8°. Accuracy of the steps is ± .09° non-accumulative. The motor can step at varying speeds, start, stop and reverse direction without losing any steps.

slo-syn Translator

PRINCIPLES of OPERATION

A SLO-SYN Translator translates into motor steps, information received as pulses from an external source or from an external shorting contact. For each element of stimulus, the motor shaft advances one step of 1.8°. Each step is made accurately at a rate compatible with the input pulse rate and at a one-to-one correspondence with the input signal. As shown in Figure 1, input signals entering the SLO-SYN Translator are shaped in monostable circuits before going to the logic elements, which consist of diodes and flip-flops connected to provide the desired switching sequence.





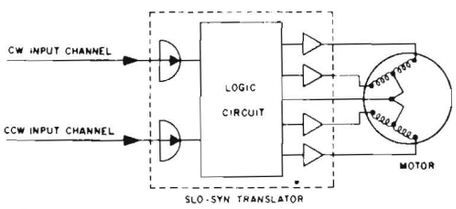


FIGURE 1

Adjustable Speed Drives

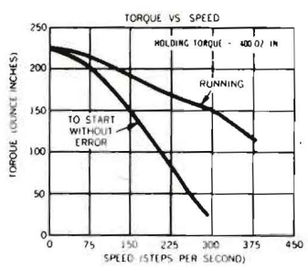
TYPE	INPUT AMPERES
ST1800BV	1.0

ST1800BV
$370.00

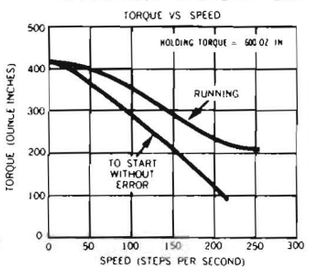
Essentially, SLO-SYN Adjustable Speed Drive type ST1800BV is a SLO-SYN Translator which includes a built-in oscillator to supply the triggering signals. The oscillator frequency can be adjusted to vary the speed from 4 steps per second up to the maximum permissable with the motor used. Direction of rotation can be controlled either from the front panel or from a remotely located switch.



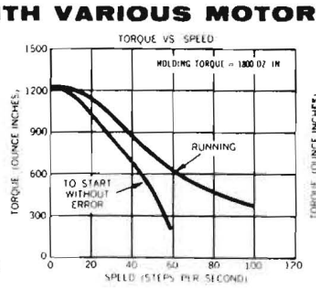
TRANSLATOR WITH VARIOUS MOTORS



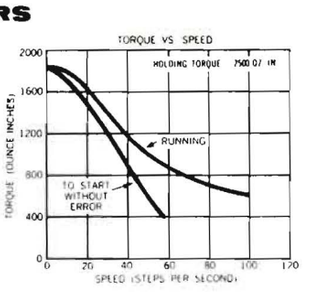
SS250-1027 OR X250-1003
MOTOR USING 1 OHM DROPPING RESISTOR



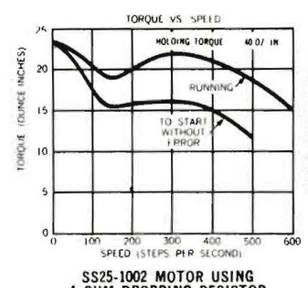
SS400-1021 MOTOR USING
1 OHM DROPPING RESISTOR



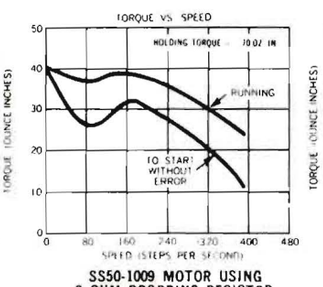
X1000-1002 MOTOR



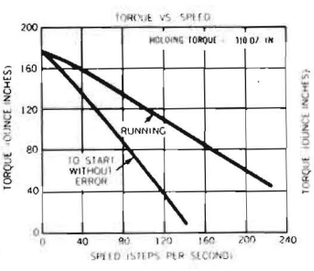
SS1800-1007 MOTOR



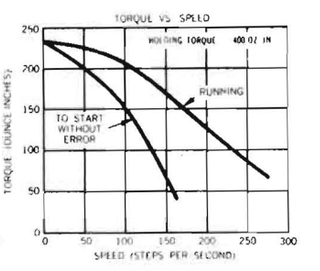
SS25-1002 MOTOR USING
4 OHM DROPPING RESISTOR



SS50-1009 MOTOR USING
2 OHM DROPPING RESISTOR



SS150-1010 MOTOR



SS250-1002 OR X250-1002 MOTOR

D-C STEPPING / STEPPING MOTORS

PRECISION STEPPING MOTORS

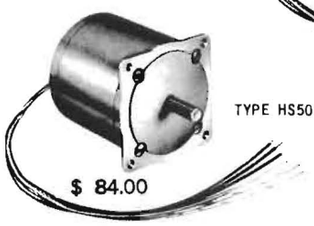
SLO-SYN Precision Stepping Motors are offered for phase-switched d-c stepping duty in applications requiring even greater positioning speed and accuracy than are possible with standard SLO-SYN motors. The motors make 200 precise steps per shaft revolution. Each step of 1.8° is accurate within ±3% noncumulative. Precision stepping motors are well suited for use in computers, numerically controlled machines, automatic switching or assembly devices, test and inspection apparatus.



$ 96.00
TYPE HS25



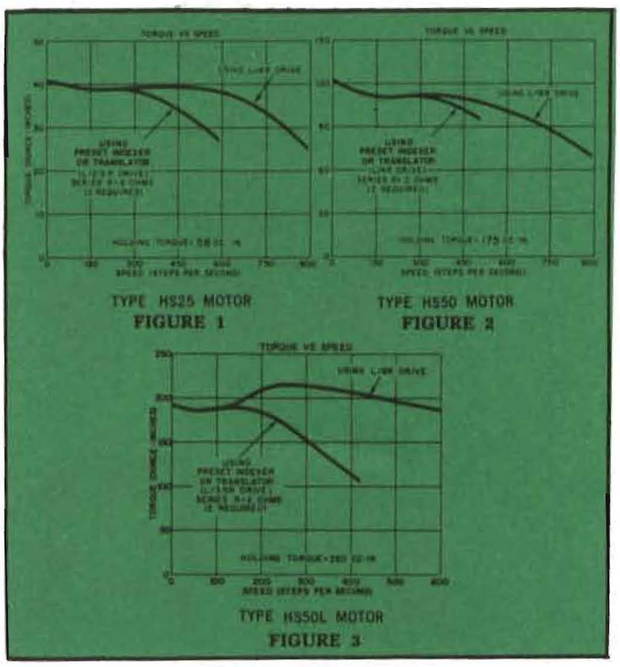
$120.00
TYPE HS50L



TYPE HS50
$ 84.00

Typical speed vs. torque characteristics for precision stepping motors are given in Figures 1, 2 and 3. The curves show that speed can be increased by reducing the L/R time constant. This can be accomplished by adding series resistance in both common leads of the motor as shown in Figure 4. As resistance is added, supply voltage must be increased to maintain rated voltage across the motor windings. The speeds shown require drive circuits which provide programmed acceleration. Further increases in speed may be affected by employing a power supply which increases voltage as the stepping rate increases.

Precision stepping motors may be operated at speeds greater than 500 steps per second if accelerating and decelerating circuits are used. With the proper circuitry, the motors may be operated at speeds of 1000 steps per second or higher without missing any steps.



TYPE HS25 MOTOR
FIGURE 1

TYPE HS50 MOTOR
FIGURE 2

TYPE HS50L MOTOR
FIGURE 3

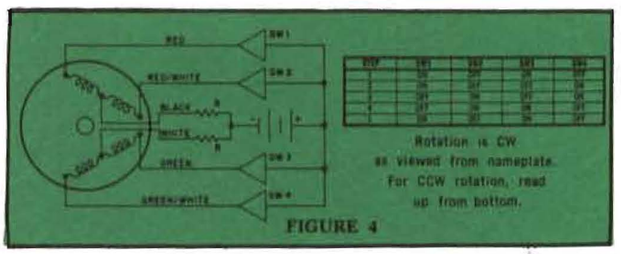
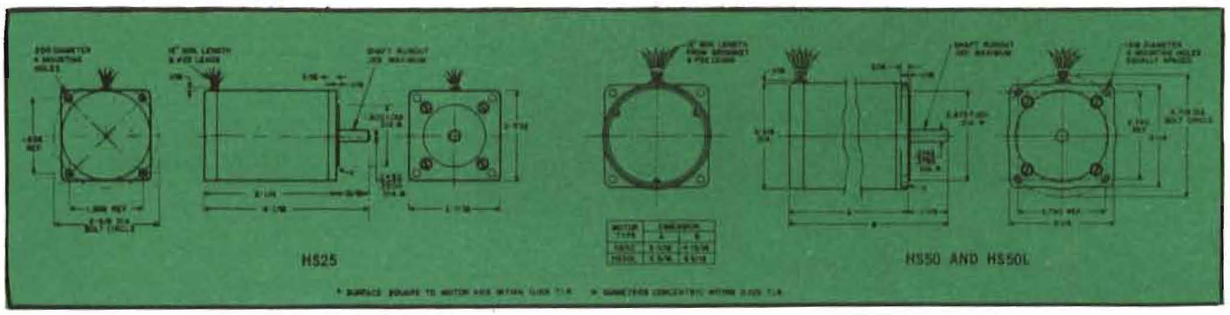


FIGURE 4



HS25

HS50 AND HS50L

MOTORS 1/8 H.P. TO 2 H.P. RELIANCE

Duty Master
FRACTIONAL
A-C. MOTORS
1/8-2 HP.

TOTALLY ENCLOSED,
FAN-COOLED • EXPLOSION-PROOF
Rigid or Resilient Base · Sleeve or Ball Bearing · Constant Speed
Continuous Duty · Single Phase

TYPE CS
CAPACITOR START
INDUCTION RUN

60 and 50 CYCLES

TOTALLY ENCLOSED
LIST PRICES—RIGID MOUNTING

HP.	Rated Load Speed Rpm.	Volts	Frame④	2 } FAN-COOLED ⑩■ ENCLOSED 55° C Sleeve Bearing Model No.	Sleeve Bearing List Price	Ball Bearing Model No.	Ball Bearing List Price	4 } FAN-COOLED EXPLOSION-PROOF Frame	Class 1, Group D Class 2, Group E, F and G Ball Bearing④ Model No.	Ball Bearing④ List Price
TYPE CS						**60 CYCLE**				
1/8	1140	115/230	L48			C48E1511	$67.00	P48	C48E2511	$99.00
	850	115/230	L56③④			C56E1511	90.95	M56③	C56E2511	126.95
1/6	1140	115/230	M48			C48E1510	72.00	P48	C48E2510	104.00
	850	115/230	M56④			C56E1510	99.50	P56③	C56E2510	137.50
1/4	1725	115/230	K48	C48E1902	$42.50	†C48E1502	46.50	M48	†C48E2502	78.50
	1140	115/230	M56	C56E1907	68.00	C56E1507	72.00	M56	C56E2507	108.00
	850	115/230	R56④			C56E1509	117.50	R56	C56E2509	153.50
1/3	3450	115/230	K48			C48E1506	45.00	M48	C48E2506	77.00
	1725	115/230	L48	C48E1901	47.00	†C48E1501	51.00	P48	C48E2501	83.00
	1725	115/230	L56			C56E3103	■59.00	K56	C56E3104	■95.00
	1140	115/230	M56	C56E1906	77.00	C56E1506	81.00	P56	C56E2506	117.00
1/2	3450	115/230	K48			C48E1505	49.00	M48	C48E2505	81.00
	1725	115/230	L56	C56E1902	60.00	†C56E1502	64.00	L56	†C56E2502	100.00
	1140	115/230	R56	C56E1905	96.00	C56E1505	100.00	R56	C56E2505	136.00
3/4	3450	115/230	L56			C56E1504	60.50	L56	C56E2504	94.50
	1725	115/230	L56	C56E1901	73.50	†C56E1501	77.50	M56	†C56E2501	113.50
1	3450	115/230	L56			C56E1503	■68.50	M56	C56E2503	104.50
	1725	115/230	R56③⑦			C56E1774	■85.00	T56	C56E2774	123.00
1-1/2	3450	115/230	T56④			C56E1776	87.50	T56	C56E2776	■123.50
	1725	115/230	■U56H③ ⑥⑦⑨⑫			C56E1773	106.00			
2	3450	115/230	T56①⑧			C56E1775	■106.50			
TYPE CS						**50 CYCLE**				
1/4	1425	115/230	L48				$52.50	M48		$ 84.50
	960	115/230	P56				78.00	P56		114.00
1/3	2875	115/230	L48				51.00	M48		83.00
	1425	115/230	L56				■65.00	L56		■101.00
	960	115/230	R56				87.00	R56		123.00
1/2	2875	115/230	L56				55.00	K56		87.00
	1425	115/230	L56				70.00	L56		106.00
	960	115/230	T56				106.00	T56		142.00
3/4	2875	115/230	L56				66.50	L56		100.50
	1425	115/230	P56				83.50	P56		119.50
1	2875	115/230	P56				74.50	R56		110.50

For Footnotes, Features and Modifications, See Page 2.

■ Revised or Added this issue.

Duty Master **A-C. MOTORS**

3/4—250 HP.

RELIANCE ELECTRIC COMPANY

TYPE P - **"E" LINE NON-MODIFIED MOTORS** ***LIST PRICES***

PROTECTED ENCLOSURES

230/460 Volts • NEMA Design "B" • Continuous Duty • Constant Speed • Ball Bearing
3 Phase 40°C. Ambient • 1.15 S.F. CL B Insulation • 60 Cycle • F-1 and F-2 Mounting

***NOTE:** The prices shown on this page apply only to the model numbers shown. For any other deviation other than shown, use basic prices listed in price list B-1301, pages 4 & 5.

Hp.	Rpm.	Model No.	Frame	Price	Full Load Current at 460V
3/4	1200	P14G409	143T	$ 59.50	1.45A
1	1800	P14G403	143T	49.50	2.05A
	1200	P14G408	145T	61.50	1.95A
1-1/2	3600	P14G406	143T	52.50	2.35A
	1800	P14G402	145T	52.50	2.8A
	1200	P18G131	182T ①	69.50	2.5A
2	3600	P14G405	145T	63.00	3.0A
	1800	P14G401	145T	57.00	3.5A
	1200	P18G132	184T	78.00	3.20A
3	3600	P14G404	145T	72.00	4.4A
	1800	P18G11	182T	67.50	4.6A
	1200	P21G131	213T ①	96.50	5.0A
5	3600	P18G71	182T	83.00	6.8A
	1800	P18G12	184T	84.50	6.8A
	1200	P21G132	215T	137.00	8.0A
7-1/2	3600	P18G72	184T	97.50	9.4A
	1800	P21G11	213T	111.00	10.5A
	1200	P25G131	254T	180.00	10.0A
10	3600	P21G71	213T	126.00	12.0A
	1800	P21G12	215T	128.00	13.5A
	1200	P25G132	256T	220.00	13.5A
15	3600	P21G72	215T	174.00	17.5A
	1800	P25G11	254T	180.00	19.5A
	1200	P28G131	284T	266.00	20.0A
	1200	P28G141	284TS	266.00	20.0A
20	3600	P25G71	254T	226.00	25.0A
	1800	P25G12	256T	220.00	25.0A
	1200	P28G132	286T	295.00	26.0A
	1200	P28G142	286TS	295.00	26.0A
25	3600	P25G72	256T	283.00	30.0A
	1800	P28G11	284T	262.00	32.0A
	1800	P28G23	284TS	262.00	32.0A
	1200	P32G131	324T	418.00	32.0A
	1200	P32G139	324TS	418.00	32.0A

①No adapter base available for this rating.

The following voltages can be furnished:

Hp. Range	Dual-voltage Connection	Single-voltage Connection
At no price addition—		
3/4—100	208—220/440, 240/480	208
125—250		440, 480
At price addition of five percent—		
3/4—100		220, 230, 240, 440, 460, 480, 550, 575
125—250		208, 220, 230, 240, 550, 575

Hp.	Rpm.	Model No.	Frame	Price	Full Load Current at 460V
30	3600	P28G71	284TS	$347.00	36.0A
	1800	P28G12	286T	291.00	37.0A
	1800	P28G24	286TS	291.00	37.0A
	1200	P32G132	326T	478.00	39.0A
	1200	P32G140	326TS	478.00	39.0A
40	3600	P38G72	286TS	425.00	48.0A
	1800	P32G11	324T	397.00	50.0A
	1800	P32G23	324TS	397.00	50.0A
	1200	P36G131	364T	567.00	
	1200	P36G139	364TS	567.00	
50	3600	P32G71	324TS	581.00	60.0A
	1800	P32G12	326T	463.00	62.0A
	1800	P32G24	326TS	463.00	62.0A
	1200	P36G132	365T	677.00	
	1200	P36G140	365TS	677.00	
60	3600	P32G72	326TS	715.00	72.0A
	1800	P36G23	364T	540.00	
	1800	P36G11	364TS	540.00	
	1200	P40G15	404T	826.00	75.5A
	1200	P40G025	404TS	826.00	75.5A
75	3600	P36G71	364TS	905.00	
	1800	P36G24	365T	651.00	
	1800	P36G12	365TS	651.00	
	1200	P40G16	405T	974.00	93.5A
	1200	P40G026	405TS	974.00	93.5A
100	3600	P36G72	365TS	1185.00	
	1800	P40G021	404T	850.00	120.5A
	1800	P40G17	404TS	850.00	120.5A
125	3600	P40G18	404TS	1535.00	148.5A
	1800	P40G022	405T	1027.00	146A
	1800	P40G19	405T	1027.00	146A
150	3600	P40G20	405TS	1875.00	173.5A
	1800	P44G023	444T	1484.00	
	1800	P44G17	444TS	1484.00	
200	3600	P44G18	444TS	2290.00	
	1800	P44G024	445T	1910.00	
	1800	P44G19	445TS	1910.00	
250	3600	P44G20	445TS	2970.00	

SLIDING BASES

Frame Size	Price	Frame Size	Price
140T	$ 8.00	320T	$20.00
180T	8.50	360T	26.00
210T	10.00	400T	38.00
250T	12.50	440T	54.00
280T	15.00		

MASTER GEARMOTORS
XL PARALLEL
RELIANCE ELECTRIC COMPANY

SELECTION TABLES — LIST PRICE

SINGLE PHASE • 60 CYCLE FRACTIONAL HP. **A-C MOTORS**
1750 RPM • TYPE CS • 115/230 VOLTS

1/4 HP.

Rated Output Rpm.	Rated Output OHL ②	Output Torque In.-Lbs.	Prot. Motor Frame	Gearcase Size	List Prices Prot.	List Prices TE ①	List Prices TEXP ①④
780	184	20	P48	SG12C	$116.50	$122.50	$154.50
640	196	24	P48	SG12C	119.50	125.50	157.50
520	208	30	P48	SG12C	128.50	134.50	166.50
420	223	37	P48	SG12C	133.50	139.50	171.50
350	235	44	P48	SG12C	138.50	144.50	176.50
280	254	55	P48	SG12C	145.50	151.50	183.50
230	343	67	R56	SG16A③	153.50	159.50	191.50
190	341	81	R56	SG16A③	160.50	166.50	198.50
155	630	98	P48	DG16A	168.50	174.50	206.50
125	665	121	P48	DG16A	175.50	181.50	213.50
100	710	151	P48	DG16A	185.50	191.50	223.50
84	735	180	P48	DG16A	195.50	201.50	233.50
68	780	222	P48	DG16A	208.50	214.50	246.50
56	810	270	P48	DG16A	218.50	224.50	256.50
45	855	336	R56	DG16A③	235.50	241.50	273.50
37	900	409	R56	DG16A③	253.50	259.50	291.50
30	1600	494	P48	TG16A	273.50	279.50	311.50
25	1680	592	P48	TG16A	292.50	298.50	330.50
20	1770	741	P48	TG16A	322.50	328.50	360.50
16.5	1840	898	P48	TG16A	350.50	356.50	388.50
13.5	1930	1097	P48	TG16A	382.50	388.50	420.50
11.0	2000	1346	R56	TG16A③	416.50	422.50	454.50
9.0	2080	1646+	R56	TG16A③	451.50	457.50	489.50

1/3 HP.

Rated Output Rpm.	Rated Output OHL ②	Output Torque In.-Lbs.	Prot. Motor Frame	Gearcase Size	List Prices Prot.	List Prices TEFC ①	List Prices TEXP ①④
780	181	26	P48	SG12C	$124.00	$130.00	$162.00
640	192	32	P48	SG12C	131.00	137.00	169.00
520	205	40	P48	SG12C	138.00	144.00	176.00
420	218	49	P48	SG12C	145.00	151.00	183.00
350	230	59	P48	SG12C	150.00	156.00	188.00
280	245	73	P48	SG12C	160.00	166.00	198.00
230	343	89	T56	SG16A③	168.00	174.00	206.00
190	341	108	T56	SG16A③	175.00	181.00	213.00
155	630	130	P48	DG16A	183.00	189.00	221.00
125	665	161	P48	DG16A	193.00	199.00	231.00
100	710	201	P48	DG16A	203.00	209.00	241.00
84	735	240	P48	DG16A	213.00	219.00	251.00
68	780	296	P48	DG16A	225.00	231.00	263.00
56	810	360	P48	DG16A	240.00	246.00	278.00
45	855	448	T56	DG16A③	257.00	263.00	295.00
37	900	545	T56	DG16A③	277.00	283.00	315.00
30	1600	658	P48	TG16A	300.00	306.00	338.00
25	1680	789	P48	TG16A	320.00	326.00	358.00
20	1770	986	P48	TG16A	350.00	356.00	388.00
16.5	1840	1196	P48	TG16A	375.00	381.00	413.00
13.5	1930	1461	P48	TG16A	405.00	411.00	443.00
11.0	2000	1793	T56	TG16A③	434.00	440.00	472.00
9.0	2080	2192	T56	TG16A③	465.00	471.00	503.00

1/2 HP.

Rated Output Rpm.	Rated Output OHL ②	Output Torque In.-Lbs.	Prot. Motor Frame	Gearcase Size	List Prices Prot.	List Prices TEFC ①	List Prices TEXP ①
780	345	40	P56	SG16A	$151.00	$157.00	$193.00
640	350	48	P56	SG16A	158.00	164.00	200.00
520	348	59	P56	SG16A	164.00	170.00	206.00
420	346	74	P56	SG16A	171.00	177.00	213.00
350	344	88	P56	SG16A	179.00	185.00	221.00
280	340	110	P56	SG16A	186.00	192.00	228.00
230	337	134	U56	SG16A③	196.00	202.00	238.00
190	332	163	U56	SG16A③	204.00	210.00	246.00
155	610	195	P56	DG16A	214.00	220.00	256.00
125	645	242	P56	DG16A	224.00	230.00	266.00
100	685	303	P56	DG16A	236.00	242.00	278.00
84	705	360	P56	DG16A	246.00	252.00	288.00
68	740	445	P56	DG16A	259.00	265.00	301.00
56	770	540	P56	DG16A	274.00	280.00	316.00
45	805	672	U56	DG16A③	294.00	300.00	336.00
37	835	818	U56	DG16A③	314.00	320.00	356.00
30	1530	987	P56	TG16A	339.00	345.00	381.00
25	1600	1185	P56	TG16A	361.00	367.00	403.00
20	1680	1481	P56	TG16A	396.00	402.00	438.00
16.5	1730	1795	P56	TG16A	426.00	432.00	468.00
13.5	1790	2194	P56	TG16A	459.00	465.00	501.00
11.0	5040	2693	U56	TG21A③	490.00	496.00	532.00
9.0	4950	3291	U56	TG21A③	531.00	537.00	573.00

3/4 HP.

Rated Output Rpm.	Rated Output OHL ②	Output Torque In.-Lbs.	Prot. Motor Frame	Gearcase Size	List Prices Prot.	List Prices TEFC ①	List Prices TEXP ①
780	330	59	R56	SG16A	$182.50	$188.50	$224.50
640	347	72	R56	SG16A	191.50	197.50	233.50
520	343	89	R56	SG16A	199.50	205.50	241.50
420	341	110	R56	SG16A	209.50	215.50	251.50
350	337	132	R56	SG16A	216.50	222.50	258.50
280	332	165	R56	SG16A	226.50	232.50	268.50
230	535	201	R56	DG16A	234.50	240.50	276.50
190	555	244	R56	DG16A	244.50	250.50	286.50
155	585	293	R56	DG16A	254.50	260.50	296.50
125	615	363	R56	DG16A	266.50	272.50	308.50
100	650	454	R56	DG16A	281.50	287.50	323.50
84	660	540	R56	DG16A	294.50	300.50	336.50
68	685	667	R56	DG16A	311.50	317.50	353.50
56	705	810	R56	DG16A	339.50	345.50	381.50
45	1340	1008	R56	TG16A	354.00	360.00	396.50
37	1400	1201	R56	TG16A	379.50	385.50	421.50
30	1440	1481	R56	TG16A	407.50	413.50	449.50
25	1480	1777	R56	TG16A	434.50	440.50	476.50
20	1540	2222	R56	TG16A	469.50	475.50	511.50
16.5	5050	2693	R56	TG21A	501.50	507.50	543.50
13.5	5070	3291	R56	TG21A	536.50	542.50	578.50
11.0	5040	4039	145T	TG21A③	555.50	561.50	597.50
9.0	4950	4937	145T	TG21A③	571.50	577.50	613.50

①Refer to engineering section for frame size.
②Base speed of motor is 1160 rpm.
③Overhung load in (lbs.) at one shaft diameter from shaft shoulder.
④For TEXP, gearcase SG16A will be supplied in place of SG12C.

RELIANCE V-S DRIVES

POWER MATCHED V*S DRIVES

RELIANCE ELECTRIC COMPANY

DESCRIPTION AND PRICES

COMPAK V*S DRIVE • 1φ SOLID STATE

SERIES 1000

I COMPAK V*S DRIVE

A. INTRODUCTION

The Reliance Power Matched Compak V*S Drives are adjustable speed D-c. drives available in sizes from ⅛ through 1 Hp. These drives utilize 115 volts single phase 50/60 cycle A-c. power through ½ hp. and 240 volts single phase 50/60 cycle A-c. power for ¾ and 1 Hp. and provide a 20:1 regulated speed range for the D-c. motors. The specifically designed motors are power matched to the A-c. to D-c. conversion unit as well as to the load.

The Reliance power matched system consists of the following drive elements:

1. **The Operator's Control/Power Unit** provides the functions both of converting A-c. to controlled D-c. power and the housing all the necessary operator's control to start, stop and control the speed of a D-c. motor.
2. **The Heavy-Duty Fractional D-c. Drive Motor,** available in a variety of base speeds and enclosures, is power matched to the output characteristics of the operator's control/power unit and the load duty cycle requirements. It's specifically designed for cool, long lasting operation on rectified power.



Fractional D-c. Drive Motor



Operator's Control Power Unit

B. STANDARD DRIVE FUNCTIONS AND FEATURES

1. Operator's Control/Power Unit

- a. Drive start-stop (rocker switch)
- b. Speed selection (20:1 Speed Range)
- c. Compact pushbutton type enclosure
- d. Conveniently located circuit breaker
- e. Smooth timed acceleration
- f. Modern Styling.

2. Heavy-Duty Fractional D-c. Drive Motor

- a. Heavy gauge rolled steel 56 frame
- b. Heavy gauge NEMA H base
- c. Brush inspection openings
- d. Double-shielded ball bearings (lubricated for life)

BASIC DRIVE PRICES AND MODEL NUMBERS

115 Volts (⅛-½ Hp.) and 240 Volts (¾-1 Hp.) 50/60 Cycle A-c.

Hp.	Type	Controlled Speed Range Rpm.① Min-Base	Basic Drive List Price		Drive Less Motor		Power Matched D-c. Motor			
			Drip Proof Motor	TENV Motor	List Price	Model Number	Drip Proof		TENV	
							Frame	M/N	Frame	M/N
1/8-1/6	1C	172-3450	180	184	$80	8C1D	P56H		P56H	
	1C	125-2500	153	157			P56H	T56H763	P56H	T56H1763
	1C	88-1750	163	*170	③		P56H	T56H756	P56H	T56H1784
1/4	1C	172-3450	182	192	$80	8C1D	P56H		R56H	
	1C	125-2500	163	172			P56H	T56H762	T56H	T56H1762
	1C	88-1750	177	*185	③		R56H	T56H755	T56H	T56H1783
1/3	1C	172-3450	192	208④	$80	8C1D	P56H		R56H	
	1C	125-2500	171	180			R56H	T56H761	U56H	T56H1761
	1C	88-1750	187	198	③		T56H	T56H754	U56H	T56H1754
1/2	1C	172-3450	218	232④	$80	8C1D	R56H		T56H	
	1C	125-2500	192	203④			T56H	T56H760	T56H	T56H1760
	1C	88-1750	*212	*225④	③		U56H	T56H781	U56H	T56H1781
3/4	1C	172-3450	277	320④	$150	8C2D	T56H		U56H	
	1C	125-2500	252	292④			U56H	T56H634	U56H	T56H1634
	1C	88-1750	270	312④	③		U56H	T56H627	W56H	T56H1627
1	1C	172-3450	320	358④	$150	8C2D	T56H		U56H	
	1C	125-2500	280	325④			U56H	T56H633	W56H	T56H1633
	1C	88-1750	*314	*351④	③		W56H	T56H654	W56H④	T56H1654

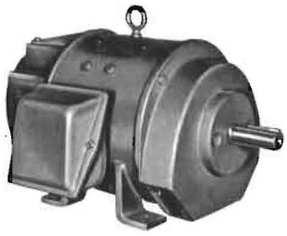
①When used with solid state power matched drives, D-c. motors can operate continuously at full load torque at all speeds down to 60% base speed. If torques at lower speeds do not exceed 60% of rated torque, continuous operation at any speed over the complete 20:1 speed range can be obtained.

②Motor is TEFC.

③This price is a pricing aid only.

④Class F insulation 40° C ambient.

*Stock Rating—These motors are **stocked** and **priced** as "C" face motors with removable feet. If the "C" face with removable feet is not desired deduct **$2.00** from the basic drive list price for a standard foot mounted motor.



VARIABLE SPEED DRIVE

CONTROL STATION





POWER UNIT

The V*S Leader II Drive consists of a solid state full wave silicon controlled rectifier power unit powering a D-c. motor. By means of controlling the voltage output of the power unit a continuously variable speed range is obtained. Speed control is obtained by means of a potentiometer located in the operator's control station.

The D-c. motor is specifically designed for operation from rectified power. It is of heavy duty construction, rated at 70°C rise (dripproof) or 75°C rise (totally enclosed).

Basic speed range of this drive is from base speed down to 1/8 base speed over a constant torque range.

V*S Leader II drives from 1-5 Hp. inclusive have single phase, 230 volts A-c. input and 7-1/2-15 Hp. drives are arranged for three phase, 230 volt input. Both the single and three phase drives provide three available modifications: Dynamic Braking, Reversing and Dynamic Braking, and Speed Regulation (1%).

CHARACTERISTICS

HORSEPOWER RANGE

1-5 Hp.
7½-15 Hp.

SPEED RANGE

20:1 for Normal Duty. For full torque operation below 60% base speed, motor mounted blower or other separate air suppy must be provided.

POWER SUPPLY

V*S Leader II Drives are operated from 230 volts Single Phase (1-5 Hp.) and Three Phase (7½-15 Hp.). Power Units operate on 50 or 60 cycles. Pushbutton circuits are 115 volts A-c.

MOTOR VOLTAGES

1-5 Hp.; 150 Volt Armature, 100 Volt Field.
7½-15 Hp.; 240 Volt Armature, 160 Volt Field.

STANDARD CONTROL FUNCTIONS

Start-Stop, Run-Jog Selection, Speed Selection, Adjustable Timed Acceleration (7½-15 Hp.), Adjustable IR Drop Compensation (1-5 Hp.), Adjustable Current Limit (1-5 Hp.), Fixed Current Limit (7½-15 Hp.).

OPTIONAL CONTROL FUNCTIONS

Reversing & D/B, Dynamic Braking, Speed Regulation (1%).

STANDARD ACCELERATION

Standard Acceleration Time to Full Speed is 5 seconds. This may be extended by addition of External Capacitors to the Panel.

LINE VOLTAGE VARIATION

A 10% line voltage variation will cause 2½% change in speed.

LOAD REGULATION

Standard regulation is 5% of base speed with 95% load change over a 30:1 speed range with voltage regulated drives. When Speed Regulation is added 1% of base speed can be expected with 95% load change.

OVERLOAD RATING

150% for one minute.

1-PHASE 230 VOLTS A.C. 50/60 CYCLE

Hp.	Base Speed	Drive With Motor① Drip-Proof	Drive With Motor① TENV	Drive With Motor① TEFC	Motor Frame Drip-Proof	Motor Frame TENV	Motor Frame TEFC	Cabinet Size	NEMA-1 Control Station ③④	Reversing and D/B ③⑦	Dynamic Braking Only	Speed Regulation ③⑦⑧	Full Load D.C. Amps.	Full Load A.C. (RMS) Amps.
1	2500 1750 1150	$529 547 589	$651 622 702		186A 186A 187A	187A 215A 216A		2EW2	CS-3	$138	$ 37	$450	6.3	9.4
1-1/2	2500 1750 1150	616 653 716	761 772 853		186A 187A 215A	215A 216A⑤ 218A		2EW2	CS-3	$138	$ 37	$450	9.2	13.8
2	2500 1750 1150	703 750 842	863	 $876 998	187A 215A 216A	216A	 216A 218A	2EW2	CS-3	$138	$ 37	$450	11.8	17.5
3	2500 1750 1150	833 911 1157		1051 1066 1431	215A 216A 218A		216A 218A⑤ 284A	2EW2	CS-3	$138	$ 37	$450	18	27
5	2500 1750 1150	1081 1283 1459		1342 1571 1806	218A 256A 286A		256A 284A 286A⑤	2EW2	CS-3	$138	$ 37	$450	28	42

3-PHASE 230 VOLTS A.C. 50/60 CYCLE

7-1/2	2500 1750 1150	$1490 1629 1828		$1951 1981 2252	216A 256A 284A		254A 256A 284A	1SRW	CS-3	$270	$ 95	$450	28	25.1
10	2500 1750 1150	1789 1951 2170		2313 2370 2780	284A 284A 284A		284A 284A 364A	1SRW	CS-3	$452	$102	$450	38	33.5
15	2500 1750 1150	2001 2196 2481		2634 2801 3238	286A 284A 288A		286A 286A 366A	1SRW	CS-3	$452	$102	$450	54	50.3

①Basic Drive Includes Jogging Control with Jog Speed selected from Main Speed Potentiometer.

③If Reversing is added, a CS-4 Control Station is supplied.

③The addition for Speed Regulation includes $100 List Addition to the Control and $350 addition for a 5PY Tachometer.

④Class F Insulation, 95°C. rise, not suitable for Underwriters Label.

⑤Deduct $21 from Drive Price for omission of CS-3 Control Station.

⑥Deduct $41 from Drive Price for omission of CS-4 Control Station when addition for Reversing is used.

⑦If Reversing and D/B are used with Speed Regulation, a 2.5EW cabinet will be supplied on Drives of 1 to 5 Hp. For drives 7½-15 Hp. with reversing and D/B, refer to your Reliance Distributor or Reliance Sales Office for Cabinet size confirmation.

⑧When speed regulation is added, standard model number motors cannot be used because of addition of motor-mounted 5PY tachometer. Order motor as follows: _____D-c. motor(s), _____Hp., _____Rpm., _____enclosure, similar to Model Number _____, except with motor-mounted 5PY Tachometer, 100 Volts per 1000 Rpm.



TWO SPEED GEARMOTORS
APCOR
Speeds Changed Electrically

9 Standard Ratio Models
13 Standard Motor Speeds

PRICE $132.00

Gearhead Only $107.00

OPERATIONAL FEATURES:

The APCOR HI-LO Gearmotor features a small size unitized package; remote electric speed change; a 2 speed head with 9 standard ratio models and 13 standard motor speeds.

The recommended maximum output torque of Series 2250 units should not exceed 50 oz. in. at any ratio or output speed.

For both speeds the rotation is unidirectional, output CW or CCW available. When ordering, specify direction as viewed from output shaft end.

Designed for horizontal face or base mounting. If vertical mounting is desired, please consult our engineers.

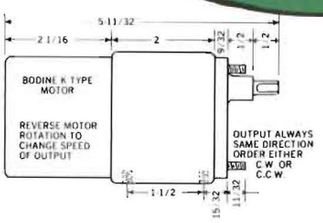
Standard units equipped with a Bodine type KYC 115VAC 3 lead synchronous motor; other motor types available on special order.

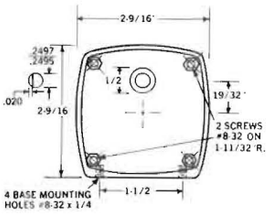
The speeds are changed by electrically reversing the motor. The output shaft always turns in the same direction regardless of motor direction; also whereas it turns manually free in drive direction, the output shaft cannot be turned or driven backward.

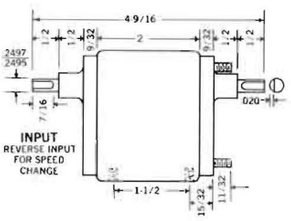
The bronze bearings are wick oiled.

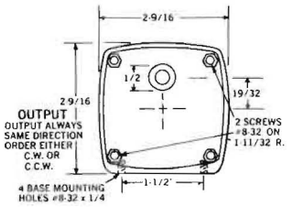
2 speed gearbox only available (without motor).

Shipping weight approximately 3½lbs.









The following table gives the ratios and output speeds for 117 different models. For example, model **2254-015** has ratios of 1-1 and 10-1 and a 15 RPM motor, giving output speeds of 15 RPM at 1-1 ratio and 1.5 RPM at 10-1 ratio:

Maximum Torque at 1-1 Ratio	RATIOS & OUTPUT SPEEDS (RPM) FOR 117 DIFFERENT MODELS																				
	#2251		#2252		#2253		#2254		#2255		#2256		#2257		#2258		#2259				
	1-1	2-1	1-1	4-1	1-1	5-1	1-1	10-1	1-1	20-1	1-1	30-1	1-1	50-1	1-1	60-1	1-1	100-1	↓		
50	1	0.5	1	0.25	1	0.2	1	0.1	1	0.05	1	0.033	1	0.02	1	0.016	1	0.01	–001		
50	2	1	2	0.5	2	0.4	2	0.2	2	0.1	2	0.066	2	0.04	2	0.033	2	0.02	–002		
50	3	1.5	3	0.75	3	0.6	3	0.3	3	0.15	3	0.1	3	0.06	3	0.05	3	0.03	–003		
50	4	2	4	1	4	0.8	4	0.4	4	0.2	4	0.133	4	0.08	4	0.066	4	0.04	–004		
50	6	3	6	1.5	6	1.2	6	0.6	6	0.3	6	0.2	.6	0.12	6	0.1	6	0.06	–006		
32	10	5	10	2.5	10	2	10	1	10	0.5	10	0.33	10	0.2	10	0.166	10	0.1	–010		
21	15	7.5	15	3.75	15	3	15	1.5	15	0.75	15	0.5	15	0.3	15	0.25	15	0.15	–015		
12	25	12.5	25	6.25	25	5	25	2.5	25	1.25	25	0.83	25	0.5	25	0.416	25	0.25	–025		
10	30	15	30	7.5	30	6	30	3	30	1.5	30	1	30	0.6	30	0.5	30	0.3	–030		
6.6	60	30	60	15	60	12	60	6	60	3	60	2	60	1.2	60	1	60	0.6	–060		
4	100	50	100	25	100	20	100	10	100	5	100	3.33	100	2	100	1.66	100	1.0	–100		
2.6	150	75	150	37.5	150	30	150	15	150	7.5	150	5.0	150	3.0	150	2.5	150	1.5	–150		
2	200	100	200	50	200	40	200	20	200	10	200	6.66	200	4	200	3.33	200	2	–200		

NOTE: *(1) Other reduction ratios are available on special order*

(2) Head only available (see "2 speed gearhead" drawing). To order specify ratio, model number, and – 000 instead of motor speed number i.e. — 2254-000.

25,000 to 1 RATIO RANGE NOW AVAILABLE

With This Reducer and Motor Control Combination

This unique range is possible because the Controller electronically gives infinitely variable speed ranges up to 25 to 1 and the Apcor Reducer provides 1000:1 range mechanically.

Some of the interesting combinations which are possible are shown by the chart below. You may use any of the motors up to 1/8 h. p. (shown on page 3) with any Apcor Reducer. For continuous duty we do not recommend input speed into the Apcor of more than 1200 rpm.

The maximum continuous torque of the Apcor Reducer is 100" oz. Motors of as much of 200" oz. torque may be used, but the output shaft torque will still deliver 100 oz.

If you wish 25,000 to 1 speed ratio with 1% regulation accuracy, we recommend replacement of the S-12 Control by the S50T-10 Tach systems.

HERE'S HOW YOU CAN USE THE APCOR 2400 10-RATIO SPEED REDUCER

1 Use with any synchronous or constant speed motor or gear – motor to obtain 10 discrete, exactly reproducible output speeds.

2 Use any combination of motor and Heller control to provide infinitely variable speed control within each of the 10 Apcor ratios or any speed within a 30,000 to 1 speed range.

APCOR REDUCER WITH BODINE MOTOR AND VARIABLE SPEED CONTROL

H.P.	Speed Range (in rpm) using S-12 Control Without APCOR REDUCER	Torque	Speed Range (in rpm) using S-12 and APCOR Any speed between:	To secure the range shown in Column D, order 1 ea. of items in Cols. E, F & G.			
				Control	Motor	APCOR	Total
A	B	C	D	E	F	G	H
1/20	150-1500	42" oz.	.15 to 1500	S-12A $52.00	B236BC $57.00	2401-A $132.00	$241.00
1/8	150-2400	70" oz.	.15 to 2400	S-12A $52.00	B2420C $55.00	2402-A $132.00	$239.00
1/12	150-1500	70" oz.	.15 to 1500	S-12A $52.00	B2370C $63.00	2401-A $132.00	$247.00
1/30	11.7-270	4.8" lbs.	.05 to 270	S-12A $52.00	B2150C-10H $57.00	2404-A $132.00	$241.00
1/20	30-470	5.5" lbs.	6 to 470	S-12A $52.00	B2408XC-05 $106.30	2405-A $132.00	$290.00
1/70	28-432	2.2" lbs.	.05 to 432	S-12A $52.00	B2150EC-06 $53.00	2403-A $132.00	$237.00
1/70	.4 to 6	5.7" lbs.	.04 to 6	S-12A $52.00	B2150EC-432 $53.00	2406-A $132.00	$237.00
1/15	60-900	4.3" lbs.	.03 to 900	S-12A $52.00	B2410XC-2-1/2H $116.48	2402-A $132.00	$300.00
1/20	150-2400	28" oz.	7.5 to 2400	S-12A $52.00	B2408C $48.00	2404-A $132.00	$232.00
1/8	60-900	8" lbs.	.06 to 900	S-12A $52.00	B2420XC-2-1/2L $127.95	2401-A $132.00	$311.95
1/50	8.6 to 134	7.3" lbs.	.043 to 134	S-12A $52.00	B2150C-20H $57.00	2404-A $132.00	$241.00
1/70	9.6 to 144	5.4" lbs.	.96 to 144	S-12A $52.00	B2150EC-18 $53.00	2406-A $132.00	$237.00



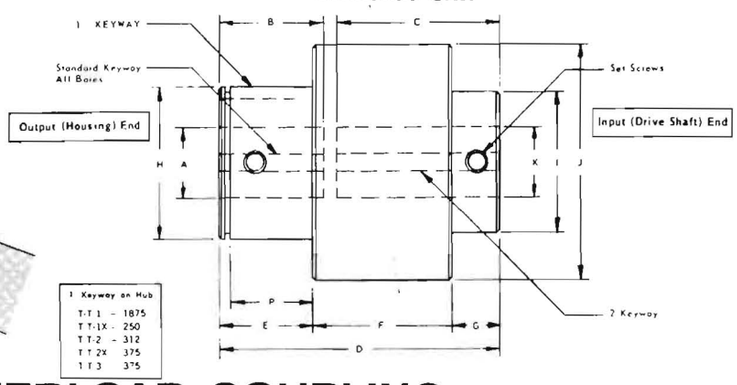
ACCURATE TORQUE CONTROL

AUTOMATICALLY RE-ENGAGES AT SAME INDEX POINT AND SAME TORQUE VALUE!

A POSITIVE DRIVE - NOT A FRICTION UNIT



STANDARD UNIT



A VERSATILE OVERLOAD COUPLING

1 Accurate trip release
2 Torq-Tenders will solve most overload problems
3 No adjustments required as torque setting remains constant
4 Will last for years
5 No lubrication required
6 Small diameter – strong torque
7 Easy to install –
8 Easy to mount gear, pulley or sprocket
9 Functions in temperatures up to 350°
10 Serves as a flexible coupling – 1½° angular misalignment and .005° to .030° parallel misalignment, depending upon the size of the unit
11 Will function in a vertical or horizontal position
12 Can be used as an indirect coupling as well as a direct coupling
13 Torq-Tender will function in both clockwise and counter clockwise direction
14 Can be water and dust proofed for small additional charge
15 Standard bore sizes of Torq-Tenders will fit most shaft diameters
16 The bore size on the drive shaft (input) end can be increased by means of an adaptor.
17 An optional actuating pin assembly which strikes a switch and activates a warning signal or shuts off the motor can be provided at small additional cost

Complete 12 page Catalog on this Product available on request

Size	Standard Bores							Torque Ranges
T-T-1X	.187	.250	.312	.375	.437	.500		2 to 70 inch lbs.
T-T-2	.250	.312	.375	.437	.500		.625	4 to 140 inch lbs.
T-T-2X	.500		.625		.750			18 to 350 inch lbs.
T-T-3	.750		.875		1.000		1.125	18 to 500 inch lbs.
Tandem	.750		.875		1.000		1.125	36 to 1000 inch lbs.

2. STANDARD KEYWAYS

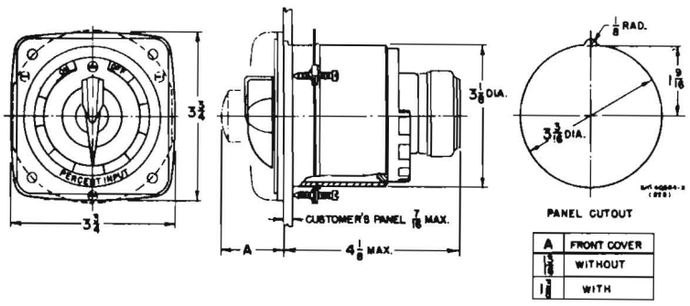
Bore Size	Width
½ to 5/16"	⅛"
5/8 to ⅞"	3/16"
15/16 to 1¼"	¼"
1 5/16 to 1⅜"	5/16"
1 7/16 to 1¾"	⅜"

Bores ½" and larger will have standard keyways Bores under ½" will have no keyways unless specified.

STANDARD DIMENSIONS												
Size	B Housing Shaft Engagement	C Drive Shaft Engagement	D Over-all Length	E Flange Length	F Body Length	G Hub Proj.	H Flange Dia.	I Hub Dia.	J Body Dia.	P	Weight	Prices
T-T-1X	.625	1.125	1.790	.600	.985	.205	1.000	.875	1.562	.500	8 oz.	34.00
T-T-2	.812	1.500	2.450	.750	1.300	.325	1.375	1.250	2.062	.625	1.25 lb.	45.00
T-T-2X	1.125	1.750	2.975	1.000	1.500	.450	1.625	1.500	2.500	.875	2.25 lb.	56.00
T-T-3	1.312	2.000	3.475	1.187	1.812	.500	1.750	1.750	3.000	1.062	3.25 lb.	70.00

ATC PERCENTAGE INPUT CONTROLLERS

ATC SERIES 304

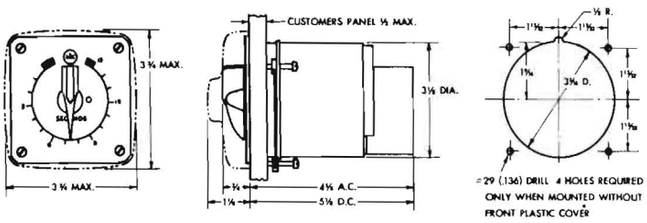


ATC SERIES 304—Controls load circuit on time-base principle, interrupting power input for a predetermined percentage of each time cycle. Dial adjustable "on" time between 0 and 100%. Repeat accuracy: ± 1/10%. Average life expectancy: 3,000,000 operations (1,000,000 at full 25 amp rated load). Heavy duty load contacts rated 25 amps at 115 VAC; ideal for controlling input current to electrically heated devices. Choice of 15, 30 or 60 sec. cycle. UL approval.

$32.50

TRANSISTORIZED TIMER & PULSE GENERATOR

ATC SERIES 308



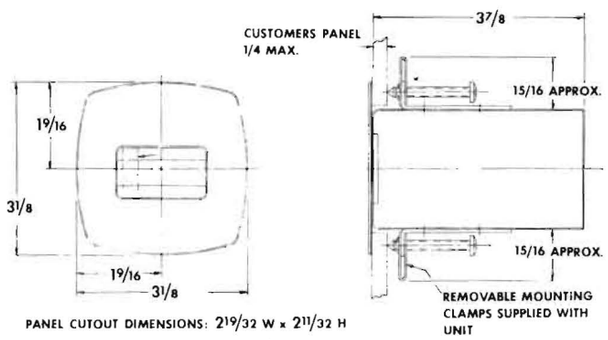
ATC SERIES 308—Transistorized timer for accurate control of short time intervals. Controls ac or dc loads with repeat accuracy of ± 1.0%. Dial adjustable; dial may be remotely located. One DPDT delayed relay with heavy duty contacts rated 15 amps at 115 VAC. Optional mercury-wetted relay with life expectancy in excess of 100,000,000 operations. Dial ranges: 1.5 to 150 sec.

AVAILABLE STYLES	ELEC. TRICAL RATING	TIMING RANGES (seconds)		
		1.5; 6; 15; 30	60	150
TIMER WITH BLACK PLASTIC DIAL	30 V. 50/60 Cy.	$82.50	$83.50	$84.50
	115 V. 50/60 Cy.	$85.00	$86.00	$87.00
	230 V. 50/60 Cy.	$87.00	$88.00	$89.00
	48 V. DC	$90.50	$91.50	$92.50
	125 or 250 V. DC	$93.50	$94.50	$95.50

Also available in 220V, additional $1.

ELAPSED TIME INDICATOR

ATC SERIES 5701

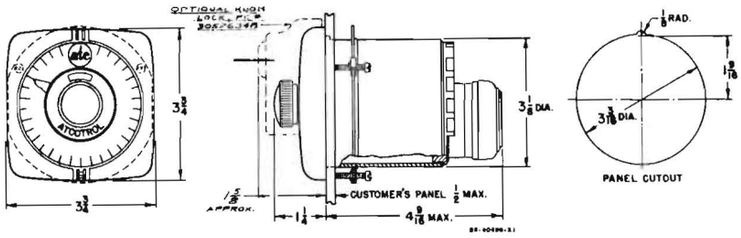


ATC SERIES 5701—Elapsed time indicator with reset: knurled wheel returns all digits to zero at any time. Easily read five-digit display for time ranges of 9,999.9 hours or minutes or 99,999 seconds. Available for 24, 115 or 230 VAC standard; for top, bottom, back or front-mounting, with or without bezel. UL approval.

	RANGE	VOLTAGE & FREQUENCY		
RESET 5701	0- 9,999.9 Min.	$18.00	$18.50	$19.00
	0- 9,999.9 Hrs.	$18.00	$18.50	$19.00
	0-99,999 Sec.	$18.50	$19.00	$19.50

ATC TIMERS





ATC SERIES 305

AUTOMATIC RESET DIAL TIMER

ATC SERIES 305—Delay or interval timing with repeat accuracy of ± 0.2%. Resets in less than ¼ sec. Dial-adjustable with cycle progress indication. Two heavy-duty SPDT instantaneous and two SPDT delayed switches with contacts rated 10 amps at 115 VAC. Fourteen point terminal block. Field convertible *on delay* and *off delay* operation. Plug-in and non plug-in models, both with transparent housing. Mechanical life of 10,000,000 operations. FM approval. Dial ranges: 6 sec. to 60 hrs.

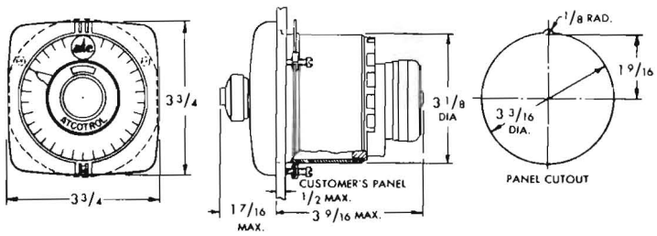
	305B						
	115V		230V		DC Models		
	60cy.	50cy.	60cy.	50cy.	28,48,125 250V. D.C.	Minimum Setting	Graduations
6 Sec.	$44.00	$45.50	$45.00	$46.50	$ —	0/00 Sec.	60
15 Sec.	44.00	45.50	45.00	46.50	—	1/4 Sec.	60
30 Sec.	43.00	44.50	44.00	45.50	86.50	1/2 Sec.	60
60 Sec.	43.00	44.50	44.00	45.50	86.50	1 Sec.	120
120 Sec.	43.00	44.50	44.00	45.00	86.50	2 Sec.	120
240 Sec.	43.00	44.50	44.00	45.50	86.50	4 Sec.	120
6 Min.	43.00	44.50	44.00	45.00	—	6 Sec.	60
15 Min.	43.00	44.50	44.00	45.50	86.50	15 Sec.	60
30 Min.	45.00	46.50	46.00	47.50	90.50	30 Sec.	60
60 Min.	45.00	46.50	46.00	47.50	90.50	60 Sec.	120
120 Min.	45.00	46.50	46.00	47.50	97.50	120 Sec.	120
240 Min.	45.00	46.50	46.00	47.50	97.50	240 Sec.	120
6 Hrs.	45.00	46.50	46.00	47.50	—	1/10 Hr.	60
15 Hrs.	46.00	48.00	47.00	49.00	—	1/4 Hr.	60
30 Hrs.	46.00	48.00	47.00	49.00	—	1/2 Hr.	60
60 Hrs.	46.00	48.00	47.00	49.00	—	1 Hr.	120

★Plug-in units up to 6 hrs., add 1.00

★★Plug-in units for 15 hrs., 30 hrs., and 60 hrs. 50 Cycle & 25 Cycle, and over 28 V. DC on application.

SERIES 309			
115 Volt, 60 Cycle		28, 48, 125 or 250 VDC	
Single Switch	Two Switches	Single Switch	Two Switches
$28.00	$29.50	$ —	$ —
28.00	29.50	—	—
27.00	28.50	69.50	71.00
27.00	28.00	69.00	71.00
27.00	28.50	69.50	71.00
27.00	28.50	69.50	71.00
27.00	28.50	—	—
27.00	28.50	69.50	71.00
29.00	30.50	73.50	75.00
29.00	30.50	73.50	75.00
29.00	30.50	80.50	82.00
29.00	30.50	80.50	82.00
29.00	30.50	—	—
31.00	32.50	—	—
31.00	32.50	—	—
31.00	32.50	—	—





ATC SERIES 309

PUSHBUTTON START INTERVAL DIAL TIMER

ATC SERIES 309—Pushbutton-started interval timer controls ac or dc loads with repeat accuracy of ± ¼%; pointer returns automatically at end of cycle. Dial adjustable with cycle progress indication. Average life expectancy: 2,000,000 operations. Two SPDT switches with contacts rated 10 amps at 115 VAC. Plug-in and non plug-in models, both with transparent housing. Dial ranges: 15 sec. to 60 hrs.

ETER

f units, strokes, R.P.M., and



Meters available:
0-5, 0-10, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-1500, 0-2000, 0-2500, 0-5000, 0-10000, RPM. Any meter can be made to your specifications within 48 hours; such as inches/minute, feet/hour, pieces/hour, 0-100% etc. Consult our sales department.

Prices:
The complete system including a M176 tachometer generator with 20 feet of 2 conductor cable, 4½" indicating meter housed in meter box, beryllium copper mounting plate and coupling:

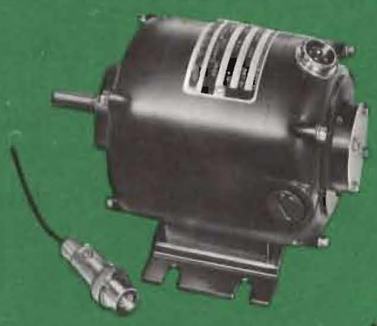
with M176T1	$90.00 each system
M176T2	$90.00 each system
M176T3	$90.00 each system
M176T4	$95.00 each system
M176T5	$90.00 each system

For reversible rotation, add "R" to tach-generator model and add $5.00 to price of system. Cable lengths up to 500 feet can be supplied; add 5c per foot. Deduct the following prices if you wish to delete any of the following:

Coupling—deduct $2.00 Mounting plate—deduct $2.50
Meter box—deduct $3.50

Important:
Before ordering.—The coupling is supplied with one side to fit the tach-generator. Please specify if the other side is to be 3/16", 1/4", 5/16", or 3/8" bore. Do you want reversing? What is speed of your driver shaft to compare to on indicating meter?

INDUSTRIAL HEAVY DUTY TACHOMETER



BASE MOUNT

★ High output models ideal for slow speed industrial applications
★ All new barium ferrite flexible magnet system
★ Rugged long life, accurate, low cost

The new P.M. DC Tach Generator was created to meet the increasing need for a high output DC model for commercial and industrial slow speed applications. A new magnet material of barium ferrite is flexible, simplifying construction and reducing cost. Rugged in design and performance, these new Tachs deliver output up to 60 volts per/1000 RMP! Direct meter readings at very slow shaft speeds are now possible.

When the P.M. DC Tach is coupled directly to the drive motor, there is no need to increase shaft speed with belts or gearing to obtain sufficient output voltage. Gear backlash and accumulated drive errors are eliminated. Self powered magnet system requires no batteries, transistors or external excitation power. Excellent inherent reliability for long, trouble-free service. Tach Generator output can be connected directly to DC meter that is calibrated to read RPM, FPM, GPH, or any rotational, surface speed or volume measurement you require.

OUTSTANDING FEATURES:

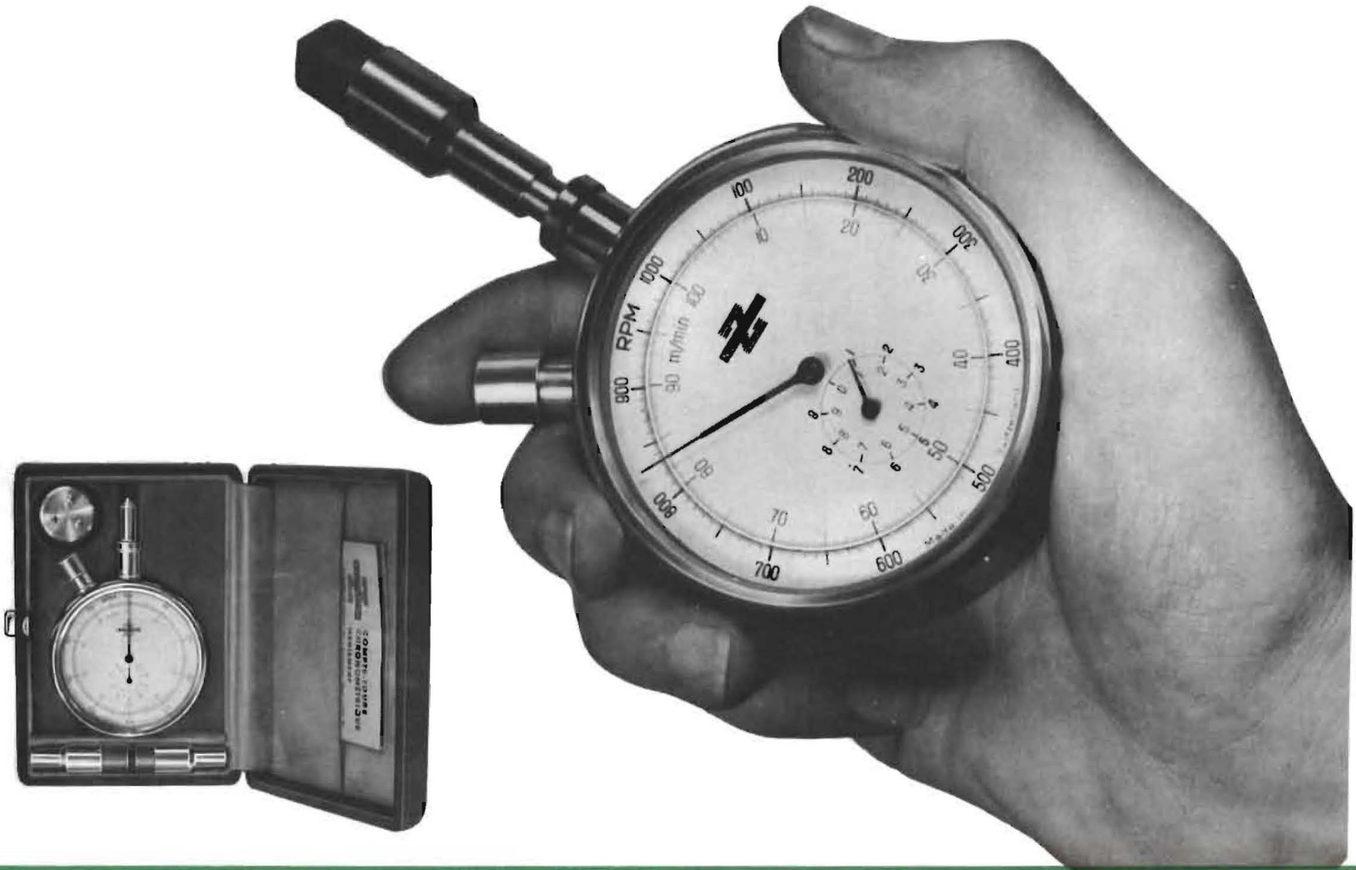
Features that contribute to the outstanding quality performance include: sealed precision ball bearings that require no lubrication, exclusive Line-O-Life silver graphite brush grades, stabilized, barium ferrite magnet, diamond finished commutators, die cast frame and end brackets with steel sleeved bearing inserts machined to close tolerances. Totally enclosed, Carter Classic Tach Generators will help you measure and control your product quality and performance . . . accurately, dependably, and, at low cost.

Classic P.M. DC Tachometer Generator

2 lead reversible, sealed ball bearings, maximum speed 10,000 RPM or 300 volts whichever comes first. Maximum output up to 15 watts capacity. Continuous duty, totally enclosed. Barium ferrite magnet, shaft diameter 5/16" max. 1" long with flat, linearity at 25°C. 1 direction, 1%, either direction, 3% Ripple, 3% filtered, 5% unfiltered. Line-O-Life silver graphite brush grades deliver over 10,000 hours life. Breakdown voltage, 1250 volts AC, 1 minute. Temperature range, —40°C to +75°C. Male and female connector furnished on all models. Weight 3½ lbs. Finish, black gloss. Other colors available on order.

Code No.	DC output Volts per/1000	Mounting	Max. Speed RPM	Price
CTA60AA	60	base	5000	$110.00
CTA60BA	60	face	5000	$110.00
CTA60CA	60	flange	5000	$115.00
CTA50AA	50	base	6000	$109.00
CTA50BA	50	face	6000	$109.00
CTA50CA	50	flange	6000	$112.00
CTA25AA	25	base	10000	$108.00
CTA25BA	25	face	10000	$108.00
CTA25CA	25	flange	10000	$111.00

Models rated less than 4000 RPM maximum speed supplied with built-in capacitor filter to assure ripple of less than 1%. Unfiltered models will average 5% or less AC ripple.



CHRONOMETRIC SPEED COUNTER ZIVY

High precision speed indicator for automatic, accurate measurement of rotary, peripheral and cutting speeds.

Principle:

The ZIVY speed indicator is intended to furnish ecceptional accurate measurement of constant speeds, revolutions or feet (meters) per minute in a few seconds' time.

It is based on the positive measurement principle, registering the result of directly measured rotary and surface speeds, divided by directly measured time.

Three major elements constitute the mechanism, a precise timing movement, an accurate revolution counter and an automatic synchronizing system.

Advanced design and construction:

A directional converter causes the indicating hands to rotate clockwise regardless of the direction of the spindle. Knife edge indicating hands. Shatterproof, chip-proof dial with finely graduated scale. Shock-proof case — die cast from Duralinox with deep knurling provide a firm grip. Ball bearings at the spindle minimize friction and insure continued dependability. Only one button. Makes instrument easier, more convenient to handle more nearly automatic.

Protectively packaged in a pocket fit sized carrying case, weight: 380 gr.

Dial:

⌀ (diameter) 2-3/16" with two divisions:
black scale = RPM
red scale = rotary, periphery or cutting speed in FPM or MPM

Reading:

The large hand (outer scale) indicates both revolutions per minute and feet (meters) per minute.

The small hand counts the revolutions of the large hand. One division of the small inner scale represents one whole revolution of the large hand. If the speed attained exceeds the dial range the hands move around the dial again, registering the speed. The overspeed allowance is 100%.

	RPM		PRICE
TYPE A	0-10,000,	0-3,000 FPM	$70.00
TYPE B	0- 1,000,	0- 300 FPM	$70.00
TYPE C	0- 100,	0- 30 FPM	$85.00

ACCURACY 0.5%

Operation:

Bring the spindle, fitted with the most suitable tip, in contact with the center of the rotating object and as nearly parallel to its axis as possible. Very little pressure is required, a light even contact is preferable.

Press the button gently, then release it quickly. Allow the tip on the spindle to remain in contact with the rotating object until the indicating hands stop, at which time the result may be read.

Since the hands remain in the position at which they stopped until the button is again pressed and quickly released, full opportunity is provided to the operator for an unhurried and precise reading of the exact result.

CONTROLS FOR VARIABLE SPEED MOTORS

To assist you in selecting the proper control for the motor you require, we have briefly described here the types of variable speed motor controllers. Since the descriptions are quite brief, we suggest you contact our sales staff for the answer to your particular problem, if you do not find a standard combination on the next pages.

1. Thyratron Controllers
CX25 handles up to 1/4 H.P. 2T60 handles up to 1/50 H.P.
Tried and true. Back E.M.F. speed correction about 8%. Correction better at lower speeds than high. Half-wave rectification with filtering. Tube life approximately 8000 hours. Proven to be dependable. Chief disadvantage is 30 second delay required for tubes to warm up. Being replaced slowly by solid state controls. Speed range of approximately 20 to 1. Reversible.

2. Silicon/Autotransformer
S12 handles up to 1/8 H.P. S30 handles up to 1/3 H.P.
Rugged, simple control for continuous duty. No feedback, therefore changes in motor speed will occur as either load or input voltages change. No maintenance problem due to solid state silicon diodes. Circuit-breaker protection of armature circuit. No aging of parts. Internal ventilation not required. Solid state silicon rectifiers utilized. Speed controlled by variable transformer. Controls motor through better than 15 to 1 speed range. Reversible.

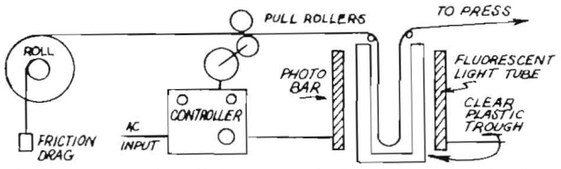
3. SCR Controllers—(Silicon Controlled Rectifier)
S10 handles up to 1/20 H.P. S47 handles up to 1/3 H.P. S250 handles up to 1 H.P. S800 handles up to 2 H.P.
Silicon controlled rectifier fired by unijunction transistor. All circuitry is solid state. Full wave rectification with filtering assures you of long motor life by minimizing brush sparking and motor heating at low speeds. Zener diode reference circuit provides not only for correction of motor speeds due to fluctuating AC input voltages but also speed correction for changes in loading. Regulation is good. Smaller and lighter in weight than any other type of control. Reversible. Speed range approximately 20 to 1.

4. SCR Controllers with Tachometer Generator Feedback
S50T handles up to 1/3 H.P. S250T handles up to 1 H.P.
The ultimate in speed regulation. Approximately 1% control assured by Tach-Generator which signals controller if motor deviates from pre-set speed. Otherwise similar to SCR controllers described under #3. Speed range better than 25 to 1 (conservatively) can be expected.
NOTE: It is worthwhile noting that all Heller Controls are designed for operation with either 115 or 230 standard voltage DC motors. A cheaper control can can be built by using odd voltage motors, however, this usually puts the prospective purchaser in a position where he doesn't have as wide a choice of motors to select from. In addition, reduced voltage motors require higher currents to produce the same power which results in lower efficiency, increased heating and shorter brush life. We have not sacrificed quality to build a cheaper control.

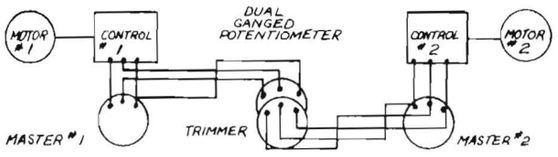
5. PM Controllers for PMI Printed Motors. Extremely wide ranges of speeds can be obtanied by using these SCR controllers especially designed to match the low voltage PMI Printed Motors. Line voltage and load correction are standard; greater accuracy and extended speed ranges may be obtained by adding the VIS-COUNT tach-generator feedback system.

Here are a few applications of Heller motor controllers. You will note that simple circuit changes can accomplish complicated programs for automation.

AUTOMATIC TENSIONLESS FEEDER FROM PAPER ROLL TO PRINTING PRESS



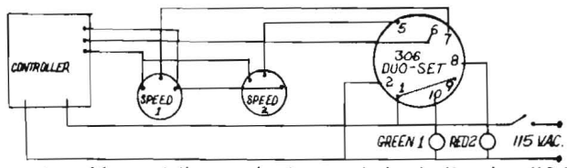
As the tape to press is pulled to press, the loop of tape hanging between light tube and photo-bar is pulled up, exposing a greater area of photo-bar to fluorescent light tube. This will increase the motor speed (proportionately) as a greater area of the photo-bar is exposed to the light tube.
The more light falling on the photobar, the faster the motor will run. As paper is pulled from the trough the motor increases speed to replace the loop. The press does not have to pull the paper off the roll.



SPEED CONTROL FOR 2-MOTORS

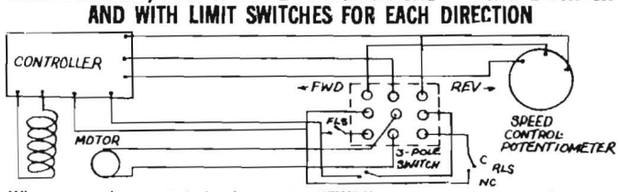
With "trimmer" tuned up to full, maximum desired speeds are set on Master #1 and Master #2. Then trimmer may be adjusted as desired and the ratio of speeds of Motor #1 to Motor #2 will remain constant. Both motors will vary up and down together. Best results with this type of system are obtained by using tachometer-generator feedback systems

2-SPEED OPERATION USING ATC MODEL 306 DUO-SET TIMER

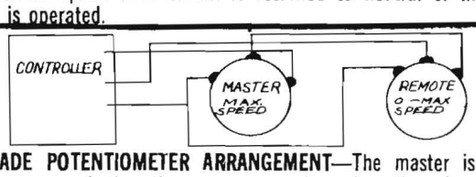


The motor will run at the speed set on control potentiometer #1 for the time set on the green pointer of the timer. Green pilot light is on. After expiration of the pre-set interval, speed changes to the speed set on control #2, green light goes out and red light comes on. This condition is maintained for the time set on the red pointer of timer. At end of this interval cycle is repeated as mentioned above.

SLOW FORWARD, FAST REVERSE USING MANUAL REVERSING SWITCH AND WITH LIMIT SWITCHES FOR EACH DIRECTION



When reversing switch is thrown to "FWD" motor runs at speed set on control potentiometer until switch is returned to neutral or limit switch "FLS" is operated. Moving switch to "REV" position causes motor to run at full speed until switch is returned to neutral or limit switch "RLS" is operated.



CASCADE POTENTIOMETER ARRANGEMENT—The master is set to a maximum speed; then the remote control can be adjusted to cause the motor to run at any speed from zero up to the maximum

S-10 MOTOR CONTROLLER

SCR / POTENTIOMETER FOR MOTORS UP TO 1/20 H.P.

DIAL THE SPEED YOU NEED $54.00



MOTORS FOR USE WITH S-10 CONTROLLER

Base Speed RPM	Speed Range	Torque	Frame	Catalog No.	Net Price
1/20 HP					
690 ★	69-897	3 "Lbs.	N-33R	B2408XC-24	109.30
345 ★	34-448	5.9 "Lbs.	N-33R	B2408XC-05	109.30
173 ★	17-224	11.9 "Lbs.	N-33R	B2408C-10	76.00
86 ★	8.6-112	18.3 "Lbs.	N-33R	B2408C-20	76.00
57 ★	5.7-74	21 "Lbs.	N-33R	B2408C-30	76.00
43 ★	4.3-55	20 "Lbs.	N-33R	B2408C-40	76.00
29 ★	2.9-37	13 "Lbs.	N-33R	B2408C-60	78.00
1/40 HP					
1725	172-2240	14 "oz.	N-13	B2152C	$ 41.00
1/50 HP					
1725	172-2240	11 "oz.	N-12	B2150C	$ 39.00
690 ★	69-897	1.2 "Lbs.	N-12RH	B2150XC-24H	91.36
345 ★	34-448	2.4 "Lbs.	N-12RH	B2150XC-05H	91.36
172 ★	17-224	4.8 "Lbs.	N-12RH	B2150XC-10H	60.00
86 ★	8.6-112	7.3 "Lbs.	N-12RH	B2150C-20H	60.00
57 ★	5.7-74	8.8 "Lbs.	N-12RH	B2150C-30H	60.00
43 ★	4.3-55	11.7 "Lbs.	N-12RH	B2150C-40H	60.00
29 ★	2.9-37	13 "Lbs.	N-12RH	B2150C-60H	60.00
29 ★	2.9-37	20 "Lbs.	N-12RG	B2150C-60G	70.00
19 ★	1.9-24.7	28 "Lbs.	N-12RG	B2150C-90G	70.00
14 ★	1.4-18.2	32 "Lbs.	N-12RG	B2150C-120G	70.00
7.2 ★	.72-9.3	47 "Lbs.	N-12RG	B2150C-240G	70.00
1/70 HP					
2850	285-3705	4.8 "oz.	32	6469C	$ 41.00
288 TE	28-374	2.2 "Lbs.	N-12R	B2150EC-06	54.00
96 TE	9.6-124	5.4 "Lbs.	N-12R	B2150EC-18	54.00
58 TE	5.8-75	3.5 "Lbs.	N-12R	B2150EC-30	54.00
48 TE	4.8-62	7.1 "Lbs.	N-12R	B2150EC-36	57.00
17 TE	1.7-22	5.6 "Lbs.	N-12R	B2150EC-100	57.00
9.6 TE	.96-12.4	7 "Lbs.	N-12R	B2150EC-180	57.00
5.7 TE	.57-7.4	6.6 "Lbs.	N-12R	B2150EC-300	57.00

★Available in totally enclosed, non-ventilated.

Rating: Single phase, 115 volt, 50/60 cycles input, for use with 115 volt DC motors up to 1/20 H.P., or series wound AC-DC motors up to .6 amperes.
Speed Range: Infinitely variable through speed ranges mentioned on table below. Full torque is available throughout the entire range.
Specifications: The S10 is a solid state silicon motor control using a silicon controlled rectifier. Constant field voltage and variable armature voltage are supplied to the motor by a silicon diode bridge rectifier. A transistor self regulating circuit and full wave filtered rectification assure dependable, trouble-free motor service. A female Amphenol connector is at the side of the control. All motors are supplied with 5 feet of vinyl covered cable attached to a mating male Amphenol locking connector. You do no wiring. The line cord is grey vinyl six feet long with grounding plug.
Features: Dynamic braking and reversing are accomplished by the three position switches on front of cabinet. The motor may be started and stopped with the same speed setting and may be stopped with or without dynamic braking. Do not use the power on/off switch for starting and stopping motor. The S10 is built into an attractive steel hammertone box which measures 4" x 5" x 3½" deep and weighs 2 pounds. The front panel is etched black aluminum. Two holes are located on back panel for ease of mounting.
Price: Control Only $54.00

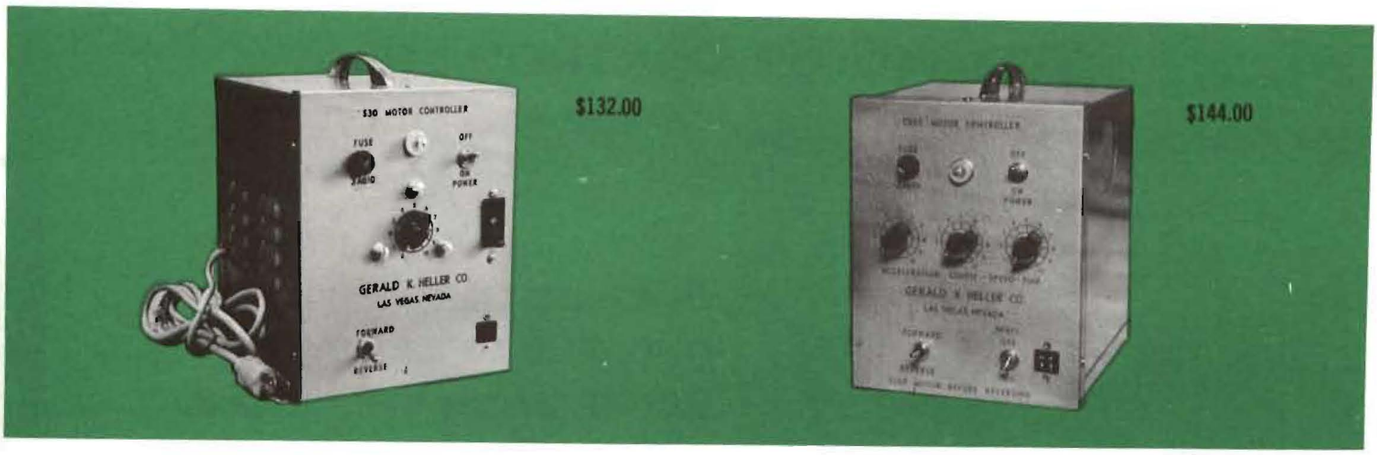


$66.00

S-20 MOTOR CONTROLLER

SCR / POTENTIOMETER CLOSED LOOP FEEDBACK FOR MOTORS UP TO 1/8 H.P

Similar to S-10
Rating: Single phase, 115 volt, 50/60 cycles input, for use with 115 volt DC motors up to 1/8 H.P., or series wound AC-DC motors up to 1.5 amperes.
Speed Range: Infinitely variable through speed ranges mentioned on table on following page. Full torque is available throughout the entire range.
Specifications: The S-20 is a solid state silicon motor control using a silicon controlled rectifier. Constant field voltage and variable armature voltage are supplied to the motor by a silicon diode bridge rectifier. A transistor self regulating circuit and full wave filtered rectification assure dependable, trouble-free motor service. A female connector is at the side of the control. All motors are supplied with 5 feet of vinyl covered cable attached to a mating male connector. You do no wiring. The line cord is grey vinyl six feet long with grounding plug.
Features: Dynamic braking and Reversing is accomplished by the three position switches on front of cabinet. The motor may be started and stopped with the same speed setting and may be stopped with or without dynamic braking. Do not use the power on/off switch for starting and stopping motor. The S-20 is built into an attractive steel hammertone box which measures 6-1/2" x 4" x 3-1/2" deep and weighs 2 pounds. The front panel is etched black aluminum. Circuit breaker protected.
Price: Control Only $66.00



$132.00

$144.00

CX 25 CONTROLLER

THYRATRON TYPE FOR MOTOR UP TO 1/4 H.P.

Rating: This controller operates motors up to 1/4 H.P. 115V D.C. and is powered from 115 volts AC through a standard NEMA three-pin grounding plug.

Speed Range: Both coarse and fine speed adjustments are provided, the fine adjustment giving about 10% variation about the point set on the coarse adjustment. In addition, an acceleration control allows the rate of buildup to the preset speed to be varied from zero to 20 seconds. This is most useful for winding applications.

Specifications: A three-position switch gives forward-stop-reverse operation and a brake switch controls the dynamic braking circuit which will stop the motor quickly if desired. Other standard equipment includes a line switch and fuse, pilot light, carrying handle and four-pin motor connector..

This unit uses the patented Heller self-correcting speed control circuit and includes a time delay to allow for proper tube warmup when the unit is first turned on.

It is contained in a steel cabinet 9" high x 7" wide x 7" high. You dial the speed you need. **PRICE CONTROLLER ONLY $144.00**

S-30 CONTROLLER

SILICON/AUTOTRANSFORMER FOR MOTORS UP TO 1/2 H.P.

Rating: The S30 controller will operate 115V D.C. motors up to ½ H.P. from 115 volt AC lines.

Speed Range: Solid State Controller permits you to dial the speed you need with full torque over the entire speed range of 15 to 1.

Specifications: Conveniently mounted on the panel are a three position forward-stop-reverse switch and speed control knob. A special circuit allows the reversing switch to be thrown from forward to reverse without damaging the motor, as dynamic braking will be applied automatically during the reversal. Standard equipment for the S30 includes: line switch, fuse, carrying handle pilot light and motor circuit breaker, which will open if motor current exceeds 5 amperes for 15 seconds. A four pin connector is used. No warmup time is required due to solid state circuitry. The S30 is housed in a steel cabinet 9" high x 7" wide x 7" deep and is furnished complete with a standard NEMA three pin grounding plug and line cord.

PRICE CONTROLLER ONLY $132.00

MOTORS FOR USE WITH CX25 AND S-30 CONTROLLERS

Base Speed RPM	Speed Range	Torque	Frame	Catalog No.	Net Price
1/3 HP					
3450 TE	345-4830	5 "Lbs.	56	D13-3450-1EM	$ 95.00
1725 XP	172-2415	11.5 "Lbs.	H56	D13-1725-1XG	130.00
1725	172-2415	11.5 "Lbs.	H56	D13-1725-1DA	80.00
1725 TE	172-2415	11.5 "Lbs.	56	D13-1725-1EG	96.54
1125 TE	200-1575	18.5 "Lbs.	56	D13-1140-1EG	115.00
780 TE	78-1092	19 "Lbs.	656SP	D13-780-1EM	174.50
420 XP	42-588	47 "Lbs.	H56SP	D13-420-1EM	220.50
420 TE	42-588	47 "Lbs.	H56SP	D13-420-1EM	191.90
420	42-588	47 "Lbs.	H56SP	D13-420-1DM	186.50
190	19-266	103 "Lbs.	H56DP	D13-190-1EM	215.50
173 TE	17-242	89 "Lbs.	H56RW	D13-173-1EM	183.50
86 XP	8.6-120	154 "Lbs.	H56RW	D13-86-1XM	228.50
72 TE	7.2-100	172 "Lbs.	H56RW	D13-72-1EM	191.50
36 TE	3.6-50	256 "Lbs.	H56RW	D13-36-1EM	197.50
1/4 HP					
3300	330-4620	69 "oz.	RE-316	65199C	$ 70.00
3300 TE	330-4620	69 "oz.	RE-316	65199-1C	80.00
1725 ★	172-2415	139 "oz.	N-55	B2422ZC	75.00
1725 TE	172-2415	139 "oz.	56	D14-1725-1EG	87.45
1725 XP	172-2415	139 "oz.	G-56	D14-1725-1XM	124.92
1125 TE	200-1575	14 "Lbs.	56	D14-1140-1EG	99.25
600	100-840	26 "Lbs.	66	65219-2C	95.00
780 TE	78-1092	19 "Lbs.	G56SP	D14-780-1EM	163.10
420	42-588	35 "Lbs.	G56SP	D14-420-1DM	172.00
420 TE	42-588	35 "Lbs.	G56SP	D14-420-1EM	177.50
420 XP	42-588	35 "Lbs.	G56SP	D14-420-1XM	192.80
345	34-489	33 "Lbs.	G56RW	D14-345-10M	181.50
190 TE	19-226	78 "Lbs.	G56DP	D14-190-1EM	199.10
173 XP	17-242	66 "Lbs.	G56RW	D14-173-1XM	223.10
173 TE	17-242	66 "Lbs.	G56RW	D14-173-1EM	183.40
173 ★	17-224	75 "Lbs.	N-55RH	B2422ZC-10H	132.00
96 ★	9.6-134	115 "Lbs.	N-55RH	B2422ZC-18H	132.00
72 ★	7.2-100	177 "Lbs.	N-55RH	B2422ZC-24H	132.00
48 ★	4.8-67		N-55RH	B2422ZC-36H	132.00
36 ★	3.6-50	254 "Lbs.	N-55RH	B2422ZC-48H	132.00
17 TE	1.7-23	588 "Lbs.	Print Available	65152C	165.00
13 TE	1.3-18.9	536 "Lbs.	G56RC	D14-13.5-1EM	241.02
9 TE	.9-12.6	717 "Lbs.	G56RC	D14-9-1EM	215.90
1/6 HP					
3450 ★	345-4830	49 "oz.	RE-316	65199-2C	$ 65.00
1/8 HP					
1725 ★	172-2415	73 "oz.	N-54	B2420C	$ 60.00
1725	172-2415	73 "oz.	56Z	65118C	34.00
690 ★	69-966	8 "Lbs.	N-54RL	B2420XC-2½L	137.95
345 ★	34-483	16 "Lbs.	N-54RL	B2420C-05L	120.43
173 ★	17-242	32 "Lbs.	N-54RL	B2420C-10L	88.00
86 ★	8.6-120	54 "Lbs.	N-54RL	B2420C-20L	88.00
57 ★	5.7-80	66 "Lbs.	N-54RL	B2420C-30L	88.00
43 ★	4.3-60	77 "Lbs.	N-54RL	B2420C-40L	88.00

TE = TOTALLY ENCLOSED XP = EXPLOSION PROOF
★ = CAN BE SUPPLIED T.E.

MOTORS FOR S47 AND S50T CONTROLLERS

Base Speed RPM	Speed Range with S50T-10 System	Speed Range with S47A or S12A Control	Torque	Frame	Catalog No.	Net Price
1/3 HP						
3450 TE	200-4485	345-4830	5 "Lbs.	56	D13-3450-1EM	$ 95.00
1725 XP	172-2240	172-2415	11.5"Lbs.	H56	D13-1725-NG	130.00
1725	172-2240	172-2415	11.5"Lbs.	H56	D13-1725-10A	80.00
1725 TE	172-2240	172-2415	11.5"Lbs.	56	D13-1725-1EG	98.54
1125 TE	112-1462	200-1575	18.5"Lbs.	56	D13-1140-1E	115.00
780 TE	78-1014	78-1092	19 "Lbs.	56SP	D13-780-1EM	174.50
420 XP	42-546	42-588	47 "Lbs.	H56SP	D13-420-1EM	220.50
420 TE	42-546	42-588	47 "Lbs.	H56SP	D13-420-1EM	191.90
420	42-546	42-588	47 "Lbs.	H56SP	D13-420-1DM	186.50
190	19-247	19-266	103 "Lbs.	H56DP	D13-190-1EM	215.50
173 TE	17-224	17-242	89 "Lbs.	H56RW	D13-173-1EM	193.50
86 XP	8.6-112	8.6-120	154 "Lbs.	H56RW	D13-86-1XM	228.50
72 TE	7.2-93	7.2-100	172 "Lbs.	H56RW	D13-72-1EM	191.50
36 TE	3.6-46.8	3.6-50	256 "Lbs.	H56RW	D13-36-1EM	197.50
1/4 HP						
3300	200-4290	330-4620	69 "oz.	RE-316	65199C	$ 70.00
3300 TE	200-4290	330-4620	69 "oz.	RE-316	65199-1C	80.00
1725 *	172-2240	172-2415	139 "oz.	N-56	B2422ZC	75.00
1725 TE	172-2240	172-2415	139 "oz.	56	D14-1725-1EG	87.45
1725 XP	172-2240	172-2415	139 "oz.	G-56	D14-1725-1XM	124.92
1125 TE	150-1462	200-1575	14 "Lbs.	56	D14-1140-1EG	99.25
600	100-780	100-840	26 "Lbs.	66	65219-2C	95.00
780 TE	78-1014	78-1092	19 "Lbs.	G56SP	D14-780-1EM	163.10
420	42-546	42-588	35 "Lbs.	G56SP	D14-420-1DM	172.00
420 TE	42-546	42-588	35 "Lbs.	G56SP	D14-420-1EM	177.50
420 XP	42-546	42-588	35 "Lbs.	G56SP	D14-420-1XM	192.80
345	34-449	34-489	33 "Lbs.	656RW	D14-345-1DM	181.50
190 TE	19-247	19-226	78 "Lbs.	G56DP	D14-190-1EM	199.10
173 XP	17-224	17-242	66 "Lbs.	G56RW	D14-173-1XM	223.10
173 TE	17-224	17-242	66 "Lbs.	G56RW	D14-173-1EM	183.40
173 *	17-224	17-224	75 "Lbs.	N-55RH	B2422ZC-10H	132.00
96 *	9.6-124	9.6-134	115 "Lbs.	N-55RH	B2422ZC-18H	132.00
72 *	7.2-93	7.2-100	177 "Lbs.	N-55RH	B2422ZC-24H	132.00
48 *	4.8-62	4.8-67		N-55RH	B2422ZC-36H	132.00
36 *	3.6-46	3.6-50	254 "Lbs.	N-55RH	B2422ZC-48H	132.00
17 TE	1.7-22	1.7-23	588 "Lbs.	Print Available	65152C	165.00
12 TE	1.3-16.9	1.3-18.9	536 "Lbs.	G56RC	D14-13.5-1EM	241.02
9 TE	.9-11.7	.9-12.6	717 "Lbs.	G56RC	D14-9-1EM	215.90
1/6 HP						
3450 *	200-4485	345-4830	49 "oz.	RE-316	65199-2C	$ 65.00
1/8 HP						
1725 *	172-2240	172-2415	73 "oz.	N-54	B2420C	$ 60.00
1725	172-2250	172-2415	73 "oz.	56Z	65118C	34.00
690 *	69-897	69-966	8 "Lbs.	N-54RL	B2420XC-2½L	137.95
345 *	34-897	34-483	16 "Lbs.	N-54RL	B2420C-05L	120.43
173 *	17-224	17-242	32 "Lbs.	N-54RL	B2420C-10L	88.00
86 *	8.6-112	8.6-120	54 "Lbs.	N-54RL	B2420C-20L	88.00
57 *	5.7-74	5.7-80	66 "Lbs.	N-54RL	B2420C-30L	88.00
43 *	4.3-55	4.3-60	77 "Lbs.	N-54RL	B2420C-40L	88.00
1/12 HP						
1725 *	200-2240	172-2415	48 "oz.	N-53	B2418C	$ 54.00
1125 *	150-1462	112-1575	74 "oz.	N-54	B2370C	63.00
690 *	69-897	69-966	5.5 "Lbs.	N-53R	B2418XC-2½	126.54
345 *	34-448	34-483	11 "Lbs.	N-54R	B2418XC-05	106.54
173 *	17-224	17-242	21 "Lbs.	N-53R	B2418C-10	84.00
86 *	8.6-112	8.6-120	37 "Lbs.	N-53R	B2418C-20	84.00
43 *	4.3-55	4.3-60	55 "Lbs.	N-53R	B2418C-40	84.00

*Available in totally enclosed, non-ventilated.

Base Speed RPM	Speed Range with S50T-10 System	Speed Range with S47A or S12A Control	Torque	Frame	Catalog No.	Net Price
1/15 HP						
1725 *	172-2240	172-2415	39 "oz.	N-34	B2410C	$ 50.00
690 *	69-897	69-966	4.3"Lbs.	N-34RH	B2410XC-2½	129.48
345 *	34-448	34-483	8.5"Lbs.	N-34RH	B2410XC-05H	109.48
173 *	17-224	17-242	17 "Lbs.	N-34RH	B2410C-10H	79.00
86 *	8.6-112	8.6-120	29 "Lbs.	N-34RH	B2410C-20H	79.00
57 *	5.7-74	5.7-80	37 "Lbs.	N-34RH	B2410C-30H	79.00
43 *	4.3-55	4.3-60	44 "Lbs.	N-34RH	B2410C-40H	79.00
24 *	2.4-31	2.4-34	88 "Lbs.	N-34RJ	B2410C-72J	125.00
12 *	1.2-15.6	1.2-17	140 "Lbs.	N-34RJ	B2410C-144J	125.00
5.7 *	.57-7.4	.57-8	219 "Lbs.	N-34RJ	B2410C-300J	125.00
1/20 HP						
3200	200-4160	320-4480	15 "oz.	N-33	6576C	$ 42.00
1725 *	172-2240	172-2415	29 "oz.	N-33	B2408C	49.00
1125 *	150-1462	150-1575	45 "oz.	N-53	B2368C	60.00
690 *	69-897	69-966	3 "Lbs.	N-33R	B2408XC-2½	109.30
345 *	34-448	34.5-483	5.8"Lbs.	N-33R	B2408XC-05	109.30
173 *	17-224	17.2-242	11.8"Lbs.	N-33R	B2408C-10	76.00
86 *	8.6-112	8.6-120	18.3"Lbs.	N-33R	B2408C-20	76.00
57 *	5.7-74	5.7-80	21 "Lbs.	N-33R	B2408C-30	76.00
43 *	4.3-55	4.3-60	20 "Lbs.	N-33R	B2408C-40	76.00
29 *	2.9-37	2.9-40	13 "Lbs.	N-33R	B2408C-60	78.00
1/40 HP						
1725	172-2240	172-2415	14 "oz.	N-13	B2152C	$ 41.00
1/50 HP						
1725	172-2240	172-2415	11 "oz.	N-12	B2150C	$ 39.00
690 *	69-897	69-966	1.2"Lbs.	N-12RH	B2150XC-2½H	91.36
345 *	34-448	34.5-483	2.4"Lbs.	N-12RH	B2150XC-05H	91.36
172 *	17-224	17.2-242	4.8"Lbs.	N-12RH	B2150XC-10H	60.00
86 *	8.6-112	8.6-120	7.3"Lbs.	N-12RH	B2150C-20H	60.00
57 *	5.7-74	5.7-80	8.8"Lbs.	N-12RH	B2150C-30H	60.00
43 *	4.3-55	4.3-60	11.7"Lbs.	N-12RH	B2150C-40H	60.00
29 *	2.9-37	2.9-40	13 "Lbs.	N-12RH	B2150C-60H	60.00
29 *	2.9-37	2.9-40	20 "Lbs.	N-12RG	B2150C-60G	70.00
19 *	1.9-24.7	1.9-26.6	26 "Lbs.	N-12RG	B2150C-90G	70.00
14 *	1.4-18.2	1.4-19.6	32 "Lbs.	N-12RG	B2150C-120G	70.00
7.2 *	.72-9.3	.72-10.1	47 "Lbs.	N-12RG	B2150C-240G	70.00
1/70 HP						
2850	285-3705	285-3990	4.8"oz.	32	6469C	$ 41.00
288 TE	28-374	28-403	2.2"Lbs.	N-12R	B2150EC-06	54.00
96 TE	9.6-124	9.6-134	5.4"Lbs.	N-12R	B2150EC-18	54.00
58 TE	5.8-75	5.8-81	3.5"Lbs.	N-12R	B2150EC-30	54.00
48 TE	4.8-62	4.8-67	7.1"Lbs.	N-12R	B2150EC-36	57.00
17 TE	1.7-22	1.7-23.8	5.6"Lbs.	N-12R	B2150EC-100	57.00
9.6 TE	.96-12.4	.96-13.4	7 "Lbs.	N-12R	B2150EC-180	57.00
5.7 TE	.57-7.4	.57-8.0	6.6"Lbs.	N-12R	B2150EC-300	57.00
4.1 TE	.40-5.2	.40-5.6	5.7"Lbs.	N-12R	B2150EC-432	57.00
3.6	.36-4.6	.36-5.0	5. "Lbs.	N-12RG	B7052C-480G	70.00
1.6 TE	.16-2.0	.16-2.2	2.2"Lbs.	N-12R	B2150EC-1120	57.00
1/100 HP						
3300	200-4290	330-4640	3 "oz.	N-13	6457C	$ 30.00
1/150 HP						
1.6	.16-2.0	.16-2.2	40 "Lbs.	N-12RG	B7096C-1080G	$ 70.00

TE — TOTALLY ENCLOSED — XP — EXPLOSION PROOF

However the S-12 control can be used only with 1/8, 1/12, 1/15, 1/20, 1/40, 1/50, 1/70, 1/100 and 1/150 motors

HELLER OPEN-CHASSIS CONTROLS

TYPE

HELLER SX10-34B

For motors up to 1/40 HP ; complete controller on printed circuit board 3" by 4" with mounting brackets. AC line and motor connections by means of wire leads. Speed control potentiometer and knob supplied for mounting on customer's panel wired to controller with 12" leads.

HELLER GT21X

Complete controller for series wound motors rated approximately ¼-ampere full load; constructed on printed circuit board 3" x 4" with mounting brackets. AC input and motor output leads furnished. Speed control potentiometer supplied with knob for mounting on customer's panel, wired to controller with 12" leads.

HELLER SX10-11

Open frame controller for DC shunt-wound or permanent-magnet motors up to ⅛ HP. Printed circuit board construction with terminal strip connections mounted on steel panel 4" x 6".

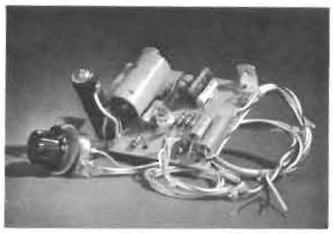
HELLER S47X

Open frame controller for use with 115 volt DC shunt wound, compound-wound or permanent-magnet motors up to ⅓ HP. Controller mounted on steel chassis. Connections by means of terminal strips. Speed control potentiometer supplied for customer's panel and connected to controller through terminal strip.

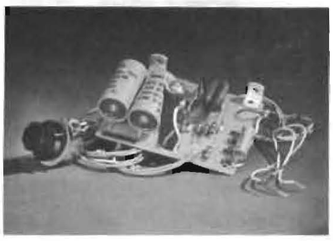
OTHER O E M CONTROLLERS

Many controllers have been developed for specialized applications and are now standard items. For example, the SX10RB controller for automated operations and the SX10T/S50TX series of precision controllers are available from stock. If you have a special problem, a slight modification of one of our standard controllers may well provide the answer.

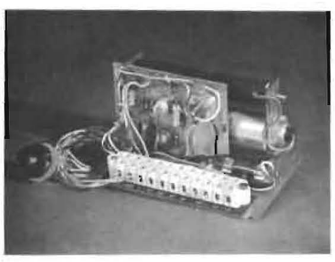
SPECIFICATION



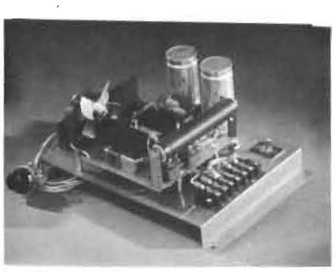
100-130 volts, 50-60 cps AC input; output for standard 115-volt DC shunt-wound or permanent-magnet motor with full-wave filtered armature voltage. Infinitely variable speed maintained at preset value regardless of load variations or line voltage changes by self-correcting zener-diode SCR circuit. Pilot light, reversing switch, circuit breaker, fuses, etc., can be supplied as accessories. Matching plain and gearhead motors in stock for use with this controller. Price $34.50



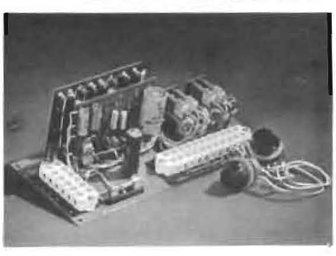
100-130 volts, 50-60 cps AC input; output to supply full-wave filtered DC voltage to series wound motors with infinitely variable speed adjustment up to maximum rating of motor. Controller will correct for changes in load and line voltage in order to compensate the normally poor speed regulation of series wound motors. The self-regulating zener diode SCR circuit, use of full-wave filtered DC voltage, and the feedback network used in this controller allow series (universal) motors to be employed in applications which have heretofore required much more expensive systems. Fuses, circuit breakers, switches, pilot lights, etc. can be supplied as optional accessories, and matching series-wound motors are also available. The GT21 1/40 HP 5000 RPM motor with high-speed shaft extension and 18:1 gearhead having rated torque of 5.4 in.-lbs is in stock and can be supplied for use with this controller. Price $33.00



100-130 volts 50-60 cps AC input through terminal strip; AC line fuse included. 110 volts DC field supply and variable full-wave filtered DC armature supply to motor through terminal strip. Speed control potentiometer and knob with 36" leads supplied for mounting on customer's panel. Infinitely variable pre-set speed as set on control potentiometer will be maintained by the zener diode SCR self-correcting feedback-type circuit, regardless of load or line voltage changes. A pair of contacts is provided on the terminal strip for a high-speed return or positioning operation. Opening the circuit between these contacts enables speeds up to 150% of base speed to be attained (without line voltage correction). Matching plain and gearhead motors of various ratios in 1/40, 1/20, and ⅛ HP ratings are in stock for shipment with these controllers, although any standard 115 volt DC motor will operate satisfactorily from this controller. Price $48.00



100-130 volt 50-60 cps AC input: 110 volt field supply and 0 to 115 volt full-wave filtered DC armature supply through terminal strip connections. Setting of speed control potentiometer will determine motor operating speed and a self-correcting zener-diode SCR circuit maintains this preset speed, compensating for line or load changes. Heavy filtering of armature circuit gives smooth operation over the entire useful range of motor. Reversing switches, fuses, circuit breakers, pilot lights, provision for limit switches or fast return operations can be supplied as accessories. Matching DC motors with and without gearheads up to ¼ HP are in stock, although this controller can be used to advantage with any standard 115 volt DC motor. Special voltage windings are not required, and frame sizes need not be increased inordinately, as is the case with half-wave controllers. Heavy-duty diodes and SCR allow for starting surges; transient protection is incorporated to protect against voltage spikes. Price $93.00



Typical of Heller special designs, the SX10RB controller (left) is similar to the SX10-11 except that it includes plug-in relays for reversing, dynamic braking, automatic traversing, and push-button or foot-switch control. Two speed-control potentiometers provide different forward and reverse speeds. Terminal strip connections are provided for AC line, motor, potentiometer, relaying and sequencing. Price $93.00

4 page complete catalog is available on these open chassis speed controls.

B&B MOTOR AND CONTROL CORP., 96 SPRING STREET, NEW YORK, N.Y. 10012 212-966-5777 B&B

PRINTED MOTORS PLUS HELLER SPEED CONTROL

300 TO 1 SPEED RANGE

10 TO 3300 RPM FOR 368 AND 488, 9 TO 2700 RPM FOR 668





OPTIONAL
10 Turn Potentiometer with
Vernier, Counting Down Dial $40 Extra
Installed

Now, for the first time, a unique motor control system adds precise speed control to the versatility of the compact PMI Printed Motor. In a single Heller/Printed Motor system, you are afforded a controlled speed range wide enough for virtually every application.

The precision-built printed motor eliminates the iron rotor and coils found in ordinary motors. Instead, the printed motor features a thin, disc-type armature made of sturdy epoxy-glass on which conductors are printed. This unique design makes the armature inductance negligible, thereby greatly extending motor life under start-stop conditions by elimination of sparking damage to the commutator and brushes. The motor is reversible up to several hundred times a second.

The uninsulated conductor pattern of the thin, flat armature produces broad cooling surfaces which allow for high current pulses and, in turn, extremely high pulse torque values.

And because the flat rotor has conductors printed directly on it, no separate commutator is needed. The epoxy-glass armature contains about 100 commutator segments, eliminating cogging even at extremely low speeds. Minimal cogging permits a speed drive, allowing you to use the motor in a variety of situations, adapting it to new functions as they arise.

This Heller Controller-Printed Motor System provides a stepless full range of speeds from 10 to 3300 RPM, **without motor cogging.** Minimal cogging also results in unusually smooth torque over the entire speed range — torque so smooth that gearless low speed drives are now possible.

The Heller Controller is a self-regulating solid-state device that converts AC to DC power for the direct-drive Printed Motor. Speed regulation from no load to full load is 7% or better, even with AC line voltage changes of ±15%.

PRINTED MOTOR SPECIFICATIONS

MODEL 368

Rated Torque (continuous duty)	12 ounce-inches
Maximum Pulse Torque Capability (intermittent)	150 ounce-inches
Armature Inertia (including hub and shaft)	.004 oz.-in-sec^2
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	3300 RPM
Rated Current for 70°C rise (continuous)	7.0 amps
Maximum Stall Current (continuous)	5 amps
Rated Voltage	12 volts dc
Power Output at 3300 rpm	1/25 H.P.
Magnetic Field	8 pole Alnico
Number of Commutation segments	97
Armature Resistance	.63 ohms
Maximum Friction Torque	1.5 ounce-inches
Weight	3 pounds

PM 75 - 368 MOTOR AND CONTROL $285.00

MODEL 488

Rated Torque (continuous duty)	42.5 ounce-inches
Maximum Pulse Torque Capability (intermittent)	375 ounce-inches
Armature Inertia (including hub and shaft)	.018 oz.-in-sec^2
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	3300 RPM
Rated Current for 70°C rise (continuous)	7.5 amps
Maximum Stall Current (continuous)	6 amps
Rated Voltage	24 volts dc
Power Output at 3300 rpm	1/7 H.P.
Magnetic Field	8 pole Alnico
Number of commutation segments	121
Armature Resistance	.600 ohms
Maximum Friction Torque	2.0 ounce-inches
Weight	6.5 pounds

PM 75 - 488 MOTOR AND CONTROL $309.00

MODEL 668

Rated Torque (continuous duty)	140 ounce-inches
Maximum Pulse Torque Capability (intermittent)	1175 ounce-inches
Armature Inertia (including hub and shaft)	.088 oz.-in-sec^2
Armature Inductance	Less than 100 micro-henries
Rated Speed (continuous duty)	2700RPM
Rated Current for 70°C rise (continuous)	10 amps
Maximum Stall Current (continuous)	8 amps
Rated Voltage	36 volts dc
Power Output at 2700 rpm	3/8 H.P.
Magnetic Field	8 pole Alnico
Number of commutation segments	145
Armature Resistance	40 ohms
Maximum Friction Torque	8 ounce-inches
Weight	13 pounds

PM 100 • 668 MOTOR AND CONTROL $445.00